Assessing conservation management practices within South Africa' s private game reserves

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ABSTRACT

Nowadays, the majority of traditional farming lands have been converted to private land used for wildlife as it is more economically viable for landowners. Due to a change from normal farming (crop and livestock) to game reserves, there are many new aspects that need to be managed on land for private game reserves, for example general management, tourism management and conservation management. Conservation management is one of the most important aspects on this land, as it affects the overall tourism experience.

Therefore, the primary objective of this study was to determine the conservation management practices on private game reserves and how those practices could influence the tourists' experiences. Secondary objectives were (1) to analysis literature regarding wildlife tourism and the private wildlife industry in South Africa, (2) to analysis literature regarding private game reserves, conservation management and tourism experiences, (3) to conduct qualitative research in order to achieve the goal of the study and (4) to draw conclusions and make recommendations regarding the results of the study.

A descriptive research design was followed, more specifically qualitative research through structured interviews. Interviews were held with the members of the presidential council of WRSA (Wildlife Ranching South Africa) who were willing to participate and who own or manage private game reserves, as well as tourists present at the farms of the different game reserves who were willing to participate. A total of eight (8) reserve owners/managers and twelve (12) tourists were interviewed during the course of the research. Judgement sampling was used as these council members are seen by the industry and have also been involved in the industry for a number of years. For the tourists, convenience sampling was used.

The main conclusion of the research was that the game owners and managers who formed part of the survey do contribute to conservation management and to the environment by implementing good conservation and environmental practices on their private game farms/reserves. This included aspects such as anti-poaching units, monitoring vegetation and wildlife, veld fire management, bush encroachment, reduction of negative impacts and waste, raising awareness and educating tourists. The study also found that tourists believe it is important to have conservation management practices present on the game farms/reserves they visit as it will influence their tourist experience.

KEYWORDS: wildlife industry, wildlife tourism, private game reserve, conservation management, conservation management practices, tourist experience

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CHAPTER 1 - INTRODUCTION AND PROBLEM STATEMENT

1.1. INTRODUCTION

South Africa has become a well-known destination for wildlife tourism, with 88% of all visitors to South Africa engaging in some form of nature-based tourism activity. This is due to South Africa's diverse wildlife, a kaleidoscope of cultures and heritages, and endless opportunities to explore nature through wildlife tourism activities (South African Yearbook, 2005/2006:570), such as wildlife viewing, camping, hiking, hunting, walking safaris and horse safaris, to name but a few (Van der Merwe & Saayman, 2004:5). The largest contributor to wildlife and ecotourism products in the country is the private sector (Taylor & Rooyen, 2016:1).

Taylor and Rooyen (2016) emphasise that the majority of private land used for wildlife today has been converted from traditional farming lands (livestock and crops) after it became more economically viable for landowners to use wildlife for commercial purposes (Taylor & Rooyen, 2016:1), also changing the management structure of the land. Due to a change from normal farming (crop and livestock) to game reserves, aspects that need to be managed on land for private game reserves have changed from managing farming acuities to general management (marketing, human resources, etc.), tourism management (accommodation, attractions, activities, etc.) and conservation management (alien plant control, problem animals, erosion, etc.) (Saayman, 2009). Conservation management is one of the most important aspects on these lands as it affects the overall tourism experience (Engelbrecht, 2011:25). Therefore, the aim of this research is to assess conservation management practices on private game reserves in South Africa. The rest of the chapter will include aspects of the private wildlife industry in South Africa, private game reserves' pillars and conservation management, method of research, chapter classification and key terminology used in the study.

1.2. BACKGROUND TO THE STUDY

There is no doubt that private game reserves, converted from stock and crop farming, do contribute to conservation in South Africa. To develop these products, one needs to transform the farm in many ways. Firstly, it needs a certified fence around its boarders to host the game; secondly, all fences inside used for livestock farming are removed; thirdly, all structures such as pens (kraal) and water points are changed or removed to suit wildlife; fourthly, different wildlife is then introduced to these lands; and lastly

suitable structures are erected to host tourism and manage wildlife (Van der Merwe & Saayman, 2004). Van Hoven (2011) indicates that close to 16 million hectares of land are currently being used for wildlife farming and private game reserves, making it an important role player in conservation. Van der Merwe *et al.* (2004) divide private game reserves into four pillars, namely breeding game and game sales, hunting, wildlife tourism and meat products, such as biltong and game meat. All of these four pillars are dependent on how owners/managers manage their conservation aspect on the land, but for those owners/managers who mainly focus on wildlife tourism it is even more important as it will impact on the tourist experience of the game farm/reserve (Janovsky, 2015:3).

Management of game farms/reserves has two main aspects. The first is related to the interests of ecotourism and the second to the interests of conservation. These two aspects can have conflicts of interests and a way to manage a game farm/reserve effectively is by using general management to connect these two aspects. General management is responsible for the planning, organising, leading and control of various managerial functions. Game farms/reserves should try and promote sustainable management in order to establish a good relationship between the organisation, economic viability, social impacts and environment respect (Hermann, 2013:99). A management plan with these three aspects is developed in most farms and reserves in South Africa to ensure the game farm/reserve is well managed (SANParks, 2006:13). It is also important that management frameworks and strategies are put in place to ensure that it supports and maintains protected areas natural and cultural values (Eagles *et al.*, 2002:12). With this, Saayman (2009:358) states that game reserve management depends on three important aspects, as mentioned above, namely ecotourism management, conservation management and general management (Figure 1.1).

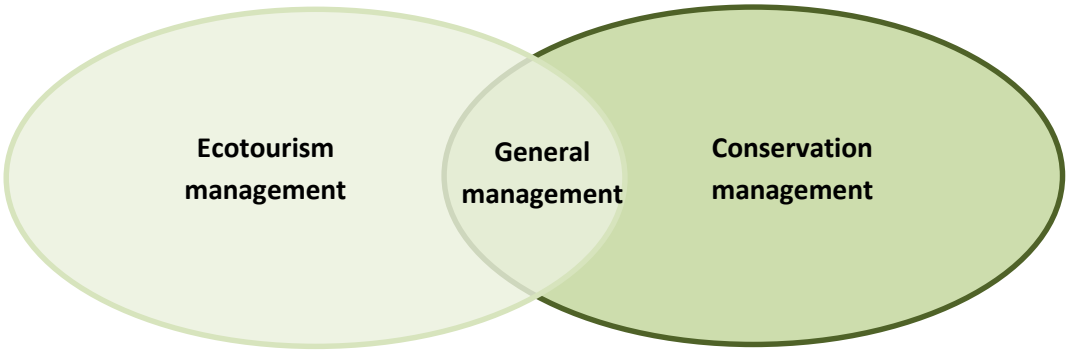

Figure 1.1: Categories of game reserve management
Source: Saayman (2009:358)

Ecotourism management is the process of tourism management, which, according to Saayman (2009:346), consists of four main core aspects, namely transport, accommodation and catering, entertainment, and attractions management. General management is usually unique to individual protected areas. It includes the core tasks of planning, organising, leading and controlling (Saayman, 2002:21; Robbins & Coulter, 2012:37). These tasks are usually conducted within the functional areas of management, which may include finance, human resources, programmes, marketing and facilities (Saayman, 2009:369). Saayman (2009:375-381) notes that conservation management involves various aspects that need to be addressed in game farm/reserve management, namely game introductions, educational facilities and water points, to name but a few (Table 1.1).

Conservation is a mixture of different disciplines that are linked by the same value. It has as main goal the prevention of irreversible loss of wildlife and the environment (fauna and flora) on this planet. This goal can be achieved through correct policies and management, which influences species, or habitats, or both (Canney & Hambler, 2013:2). The importance of conservation is growing each year, with increasing concerns over the destruction of biodiversity and the rising awareness of ecosystem services generating new debates on the human-nature relationship (Canney & Hambler, 2013:2).

In some cases, conservation management can be mistaken as the necessity of introducing and maintaining active management, but the main priority is to prevent or minimise damaging effects of *existing* human activities. For example, reduction of levels of nutrients in water entering a wetland, reducing the effects of human physical disturbance on fragile plant communities, and the reduction of herbicide and pesticide use on farmland (Ausden, 2007:5).

Conservation management involves various aspects that need to be addressed in protected area management (Coetzee *et al.,* 2015:2), as listed in Table 1.1. These aspects will later on be explained in Chapter 3.

Table 1.1 shows the different aspects of which conservation management needs to be aware to maintain a healthy and productive area, which ensures the protection and conservation of the environment, as well as research opportunities and the implementation of educational programmes (Engelbrecht, 2011:25).

Table 1.1: Conservation management aspects

Game introductions (release ramps, holding pens and bomas, game purchases)	Waste management (the collection, transportation and disposal of garbage, sewage and other waste products (waste management)
Educational facilities (e.g. interpretation centres)	Alien plant control (controlling the growth of plants that originated in a different country than where they are now)
Water points (e.g. place where water is available to local wildlife)	Veld-burning programmes (veld-burning can be important to local ecosystems, e.g. smoke and heat are sometimes needed for seeds to germinate. Veld fires can lead to the regeneration of local plant life (The DPLG:2))
Services and water supply (usually via a system of pumps and pipes, it is the provision of water by public utilities, commercial organisations, community endeavours or by individuals)	Bush-encroachment control (aims at increasing the long-term carrying capacity of the grassland through different types of eradication (Baumgartner *et al.*, 2010:3))
Carrying capacity (maximum population size of the species that the environment can sustain given the resources available in the environment)	Soil erosion reclamation (restoration of land that was damaged by natural phenomena)
Game counting (population census made at national parks/private protected areas)	Stocking rate of large herbivores (number of large herbivores grazing a piece of land for a specified period of time)
Diseases control (e.g. restraining or reducing the prevalence of diseases)	Poaching (illegal practice of hunting or capturing game without the owner's permission)
Predator management (process of balancing predation of organism in the animal populations)	Consumptive use of natural resources
Animal control problem	Removal of structures

Source: Saayman, 2009:345-383

Effective management in protected areas needs reinforcement from an effective regulatory and policy environment that will protect the areas from deterioration of wildlife resources and will improve connections between wildlife tourism and conservation. Depraved conservation management can impact on the tourism industry in private game farms/reserves (Chilumba *et al.,* 2008:117). While wildlife management is often seen as the primary responsibility of government, it is up to the tourism industry, conservation NGO's and other stakeholders (private sector) to lobby and work with government to implement appropriate management measures in protected areas (Higginbottom, 2004:227).

1.3. PROBLEM STATEMENT

As previously indicated, conservation in South Africa takes place on state-owned land and private-owned land. State-owned land includes national parks, provincial parks and local government-owned game reserves, whereas private sector land can have private game reserves, game farms or game ranches (different terms for land with wildlife on it). Legislation for conservation management for both state-owned and private land falls under the Department of Environmental Affairs (DEA) (Department of Environmental Affairs, 2017). Besides legislation, the DEA also has specific legislations for conservation for national and provincial parks in South Africa (Conservation at Work, 2017). Therefore, land for conservation managed by the state is well regulated and stringent, but it is almost impossible to manage conservation on private land in the same manner. The reason is that one has thousands of hectares belonging to different owners with different skills, aims for their land and different wildlife products (land-use, namely hunting, game breeding, ecotourism and game products such as game meat). It is also expected from state-owned parks and game reserves to have a conservation and tourism management plan. This is not the case with private game farms/reserves, as each owner can manage its property basically as he/she wishes (Goldblatt, Jakoet, Middleton & Palmer, 2011).

Conservation on private game farms/reserves is in a sense completely in the hands of the owners or managers, unless it negatively impacts the broader community or directly impacts on conservation issues nationally. Therefore, aspects such as bush encroachment, inbreeding, poor predator control or over grazing, to name but a few, can occur on private land if conservation management strategies are not correctly done or implemented (Goldblatt *et al.,* 2011). Therefore, the problem that this research would like to address is to determine conservation management practices conducted on private game farms/reserves by management. Further to this, the research will also endeavour to determine the impact of these conservation management (positive or negative) practices on the experience of tourists visiting these game reserves.

1.4. PRIMARY AND SECONDARY OBJECTIVES

The following primary and secondary objectives are set for this study.

1.4.1. PRIMARY OBJECTIVE (GOAL)

The primary objective of this study is to assess the conservation management practices of private game reserves in South Africa.

1.4.2. SECONDARY OBJECTIVES

Objective 1: To conduct a literature analysis regarding wildlife tourism and the private wildlife industry in South Africa.

Objective 2: To conduct a literature analysis regarding private game reserves, conservation management practices and tourism experiences.

Objective 3: To conduct an empirical analysis on aspects of conservation management of private game reserves in South Africa.

Objective 4: To draw conclusions from the results of the study and make recommendations that will benefit the conservation management practices on private game reserves as well as the tourists, and assist in future research.

1.5. LITERATURE STUDY

The literature study consists of an analysis of conservation management on private game reserves and tourism experiences. The following sources were consulted to gather the information needed to conduct the above literature analyses:

- Articles and scientific journals on conservation management, conservation management practices, wildlife watching, wildlife industry, tourism management, management on game farms, wildlife tourism, wildlife ranching and tourism experiences.
- Books published in the field of wildlife tourism impacts and management, ecotourism and game ranch management.
- Internet search engines: Google.

1.6. METHOD OF RESEARCH

The method of research consists of the following:

1.6.1. METHOD OF COLLECTING DATA

The purpose of research is to discover answers to questions through the application of scientific procedures. There are three different methods of collecting data: quantitative, qualitative and mixed methods (Kothari, 2004:2). For the purpose of this study, a qualitative research approach was followed.

A qualitative approach to research involves the subjective assessment of attitudes, opinions and behaviour. Research like this is a result of the researcher's insights and impressions. Such an approach to research generates results either in non-quantitative form or in the form that is not subjected to rigorous qualitative analysis (Kothari, 2004:2).

The topics of qualitative research extend over many different types of social settings and everyday lives, while also covering the major variations in qualitative research, including conceptual, historical, action, case study, ethnography and grounded theory (Yin, 2011:iv). In this research, the researcher made use of action research, which "emphasizes the researcher's adoption of an action role or an active collaboration with study participants" (Yin, 2011:17).

As this is qualitative research, it forms part of exploratory research design. Descriptive research includes surveys and different types of fact-finding enquiries. The objective of exploratory research is the development of hypotheses rather than their testing, whereas formalised research studies are those with substantial structure and with specific hypotheses to be tested (Kothari, 2004:2-4).

Structured interviews were conducted on different private game reserves in South Africa between April and May of 2018 for the purpose of collecting data. The set of interviews was aimed at private game farms/reserves where reserve owners/managers were interviewed. The second set of interviews was aimed at tourists present at the private game reserves that formed part of the research.

The questions were informed by the literature study and focused on the settings of the game reserve, conservation management practices, environmental practices, as well as the importance of both those practices. The interview for the reserve managers/owners was divided into two sections. The first set of questions looked at the demographics of the game farm/reserve, whereas the second part focused on the conservation management practices as well as environmental practices practiced on the game farms/reserves.

The tourists' interview comprised eleven (11) questions, where the first six focus on the profile details of each tourist, and the last five focus on the experience as well as the opinion of the tourists on conservation management practices on game farms/reserves.

The questions of the interviews were based on the studies of De Witt (2011), Hermann (2013), Van der Merwe and Saayman (2014) and Saayman (2009). The interviews used for the reserve managers and tourists are in Appendix A and B, respectively.

1.6.2. SAMPLING

The target population is "the entire aggregation of respondents that meet the designated set of criteria" (Burns & Grove, 1997:236). The target population for this qualitative research consisted of two research populations. Firstly, private game reserve owners/managers (supply side) from various game farms/reserves through South Africa who form part of the Presidential council of WRSA (Wildlife Ranching South Africa). The members of the Presidential council were used as research population. Therefore, judgement sampling was used (Yin, 2011:88), as this is a method where the participants or respondents need to have aprior knowledge of the research area. As these chosen council members are seen by the industry and have also been involved in the industry for several years, it can be considered judgement or purposive sampling. Wildlife Ranching South Africa is a non-profit organisation that represents the national and international interests of the ranching industry that includes game breeding, ecotourism, hunting and by-products such as game meat. A letter from the CEO of WRSA, Andri Kitshoff-Bothma and the President, Dr Peter Oberem, was sent to the presidential council members for participation in the research, and of the fifty members, eight were willing to participate.

The second research population consisted of tourists (demand side) present at the game reserves. Convenience samplings was used to select tourists who were willing to participate in the interviews. At the end of the research, 12 interviews were held with tourists at the different game reserves that formed part of the research. According to Adler and Adler (2011), it is advised that graduate students should sample between 12 and 60, with 30 being the mean.

In qualitative research, data is collected from four different field-based activities: interviewing, observing, collecting and examining (material), and feeling (Yin, 2011:129). As said above, for the purpose of this study, interviews were used to collect data.

Interviews fall into two types: structured interviews and qualitative interviews. For the purpose of this study, structured interviews were used. All interviews involve an interaction between the interviewee and the interviewer. Structured interviews clearly show this interaction. Firstly, the researcher used a questionnaire that lists all questions that were going to be asked. Secondly, the researcher assumed the role of an interviewer to obtain responses from the interviewee. And lastly, the researcher as interviewer adopted the same consistent behaviour when interviewing the rest of the

interviewees. Structured interviews tend to have certain types of questions, such as questions where interviewees will have a limited set of responses predefined by the researcher, also known as “closed ended questions” (Yin, 2011:133).

When it comes to the question of “How many interviews are enough to have a good and strong result”, most authors say “it depends”. It depends on multiple factors, such as: how important the question is to the research, the resources and even to how many respondents are enough to satisfy committee members for a dissertation. For a number of qualitative studies, one interview is enough – being the person of interest. However, one should keep asking as long as it gets different answers, as a reminder that with a small sample one cannot establish frequencies (Baker & Edwards, 2011:3).

1.6.3. DEVELOPMENT OF INTERVIEW QUESTIONS

When developing interviews’ questions, it is important to ask questions that are more likely to collect more information about the study as possible and also be able to address the aims and objectives of the research. It is usually best to start with questions that participants can answer easily and then to proceed to more difficult or sensitive topics (Britten, 1999:251).

The instrument used to conduct the structured interviews for the game farm/reserve owners/managers was divided into the following two sections:

> Section A: Demographic details: This section of the interview is related to the demographic aspects of the private game reserve/farm. Section A captured the demographic details, such as the name of the farm/reserve, respondents’ position on the farm, which province the game farm/reserve is located, current size of the game farm/reserve, start-up size when established, original practice on the land before, main land-use form, number of beds, hunters per year, tourists per year and animal species present on the game farm/reserve (Hermann, 2013).
>
> Section B: Conservation management details: Section B captured the conservation management details, such as the presence of a conservation management plan, main conservation management aspects practiced on the land, whether the conservation management practices influence tourists’ experience, whether there is an increase of awareness and positive environmental ethics and what the environmental practices implemented on the game farm/reserve are. This section captured the managers’ perception on a five-point Likert scale of importance, where *1 = not at all important, 2 = less important, 3 = neither important nor less important, 4 = very important, 5 =*

extremely important (De Witt, 2011; Hermann, 2013; Van der Merwe and Saayman, 2014; Saayman, 2009).

The instrument used to conduct the structured interviews for the tourists was divided into the following sections:

Section A: Profile details: Section A captured the profile details, such as gender, age, country of residence, reason for visit, length of stay and past experience on game farms/reserves (Van der Merwe and Saayman, 2014).

Section B: Experience and conservation details: Section B was designed to determine tourists' experience and conservation management on the game farm/reserve. Questions such as aspects that contribute to a memorable wildlife experience and its importance, conservation management aspects and also its importance, and environmentally friendly practices. This section captured the tourists' perception on a five-point Likert scale of importance, where *1 = not at all important, 2 = less important, 3 = neither important nor less important, 4 = very important, 5 = extremely important* (De Witt, 2011; Hermann, 2013; Van der Merwe and Saayman, 2014; Saayman, 2009).

1.6.3. CONDUCTING THE INTERVIEWS

The interviews were conducted by the researcher, in this case a Tourism Management master's student of the North-West University.

The members of the WRSA were from different provinces in South Africa. The survey was conducted through meetings (personal and phone interviews) with the WRSA members and tourists who were at the game farms/reserves at the time.

This survey was conducted through the months of April and May of 2018.

A telephone call and an email detailing the intent of the research that solicited for an interview were sent before the interview as well as a date for the interview for each interviewee.

Before each interview, the interviewer explained the purpose and intent of the interview in detail to the interviewee and also assured them that the information obtained would be held in strict confidence and used only for research purposes.

After permission had been obtained from the interviewee, each interview was recorded using an audio voice-recorder so that the interviews could be played back for clarity and subsequently transcribed. The interviewer also took handwritten notes during the personal interviews. The average time spent interviewing each respondent

was approximately 20/30 minutes. The interviews were done at the respondents' offices during various times of the day.

1.6.4. DATA ANALYSIS

The case study method is a very popular form of qualitative analysis, which involves a careful and complete observation of a social unit (such as a person, a family, an institution, a cultural group or a community). It is a method of study in depth rather than breadth and gives more importance to the full analysis of a limited number of events or conditions and their interrelations. Therefore, it is basically an intensive investigation of the specific unit that is being studied. The object of the case study method is to locate the factors that account for the behaviour patterns of the given unit as an integrated totality (Kothari, 2004:113).

As mentioned above, all interviews were audio recorded after the interviewee's permission was obtained. Audio recordings were transcribed onto computer and listened to carefully after the interviews to make sure all the information was correct.

Afterwards, all the data collected was transcribed from the paper and audio to Microsoft Office Word (2010) to be edited and captured. Microsoft Office Excel (2010) was used to analyse the data and to construct the tables from the research. The results, findings and evaluations of the research are presented in this document and conclusions and recommendations made were based upon the findings of the study.

1.7. DEFINING THE CONCEPTS

The following concepts are used and explained below:

1.7.1. CONSERVATION MANAGEMENT

As the name indicates, conservation management is defined as "the management of wildlife populations and the ecosystem they live in", in order to make more efficient use of materials, to recycle materials and energy that are vital to human survival, to restore derelict land and to maintain the capacity of ecosystems, which are the basis of all economies, to renew and grow (Caughley, Fryxell & Sinclair, 2006:2). It will be discussed later on, but conservation management is considered one of the primary pillars of the wildlife industry, as it is crucial for the management of the game farm/reserve and ecotourism (Coetzee, Hermann, Van der Merwe & Saayman, 2015:3).

As this study is about conservation management practices, it only makes sense to talk about the management of wildlife and the ecosystem in closed areas, such as private

game reserves or national parks. This management is crucial to prevent any type of damage, such as, extinction or habitat loss. The aim is to adopt attitudes in communities and industry to use biological resources and change from the "maximum yield" approach to one of ecologically sustainable yield. This new attitude recognises the need for conservation of biodiversity and maintenance of ecological integrity (Caughley *et al.,* 2006:2).

1.7.2. WILDLIFE TOURISM

Wildlife tourism is based on encounters with none-domestic (not-human) animals. The encounters can occur in either the animal's natural environment or in captivity. The interaction with the animals includes activities that are historically classified as non-consumptive, such as photography and feeding, as well as those involved with the capture and killing of the animals, such as hunting and fishing. Wildlife tourism can entail: attraction at fixed sites, tours and experiences available in association with tourist accommodation, and a conjunction of it can occur as unaccompanied encounters by independent travellers. A diverse set of experiences and classifying different forms of these experiences are included in wildlife tourism and can be useful for a variety of purposes (Higginbottom, 2004:2). One of the purposes of wildlife tourism is to raise awareness to the conservation of wildlife and to inspire support for its protection, as the tourist is in the presence of wildlife and usually accompanied with a guide, who aims to address conservation issues and ways tourists may help (Curtin & Kragh, 2014:546; Pirotta & Lusseau, 2015:729).

1.7.3. WILDLIFE MANAGEMENT

The definitions of wildlife management are numerous. There are some differences, but there are three common ideas present in every definition, which include efforts directed toward wildlife populations; relationship of habitat to those wildlife populations; and manipulations of habitats or populations that are done to meet a specific human goal (Yarrow, 2009).

In the early years, wildlife management was viewed as the art of making the land produce suitable game for recreational use, such as hunting, fishing, or trapping. Later on, the definition of wildlife management was seen as the science of manipulating wildlife populations and their habitats for specific human goals. And now, wildlife management is seen as an animal ecology that benefits the habitat and both wildlife and human populations, and with the increase of wildlife tourism and the pressure on the environment and wildlife, it is important to have a proper wildlife management to maintain habitats and populations (Yarrow, 2009; WGEA,2013:9).

1.7.4. PRIVATE GAME RESERVE MANAGEMENT

Private game reserve management is defined as a fenced land, with a variety of game species, that can be used for both consumptive and non-consumptive activities, like hunting, ecotourism, education, meat production, game sales. It is important to manage private game reserves responsibly because most conservation in South Africa is done on private game reserves. The management involves the management of wildlife, management of vegetation, tourism activities, game products, hunting activities, the production and sale of free-living game (Bothma, 1996:1; Van der Merwe & Saayman, 2005:1-2).

1.7.5. TOURISM EXPERIENCE

There has been a tremendous growth in wildlife tourism, each year there are more tourists interested in being involved on nature-based activities. Although this growth comes with pressure on the environment, it is also important to measure the tourist experience, as it will impact on wildlife management. According to Du Plessis (2010:30), "tourist experiences offered at national parks can be seen as tangible (infrastructure and facilities) or intangible (enhancing the quality of life); with the latter being those experiences that specifically create unforgettable memories for tourists". Those intangible experiences can vary depending on the excitement, the adventure of the tourist, the knowledge and skills, novelty or aesthetics per example. So one can agree that "tourism experience" is a highly personal, intangible, continuously on-going experience (Zatori, 2013:32).

1.7.6. PRIVATE WILDLIFE INDUSTRY

The private wildlife industry has grown a lot over the years. This private sector has four main pillars, namely: hunting, wildlife tourism/ecotourism, breeding of game and game sales, and plays an important role in conservation (Janovsky, 2015:1). This private industry can be defined as "the managed extensive production of free-living animals on large fenced or unfenced private or communal land, usually for the purposes of live sales, hunting, wildlife meat or tourism" (Cousins, Evans & Sadler, 2008:2). With this, the conservation of ecosystems and natural habitats is possible, as well as the maintenance and recovery of viable populations of species in their habitat (Cousins *et al.,* 2008:4).

1.7.7. GAME FARM/RESERVE

South Africa has about 9 000 game farms/reserves. Most of these game farms/reserves were converted from domestic stock/crop farms into effective land-use options (Dry, 2013:4). It's important to know the difference between the two. A game reserve is an important area managed with the purpose of the preservation of wildlife. There are activities such as hiking and game viewing. On the other hand, a game farm is an area that runs with the purpose to produce animals for sale, hunting and for meat, skin or horns (Hofmeyr, 2017:1).

1.8. CHAPTER CLASSIFICATION

The chapters of the study are organised as follows:

- **CHAPTER 1: INTRODUCTION AND PROBLEM STATEMENT**

  This chapter provides an outline of the study, provides information and an overview of what the research entails, also briefly describing the problem statement and objectives needed to be able to solve the problem.

- **CHAPTER 2: CONTEXTUALISATION OF THE PRIVATE WILDLIFE INDUSTRY OF SOUTH AFRICA**

  Chapter 2 provides an in-depth literature study on the subject matter. This chapter provides an in-depth view of the private wildlife industry of South Africa, as well as the different pillars of this industry.

- **CHAPTER 3: CONSERVATION MANAGEMENT PRACTICES ON PRIVATE GAME RESERVES IN SOUTH AFRICA**

  This section provides an in-depth literature study on the subject matter. This chapter provides an in-depth view of relevant concepts that concern wildlife conservation and conservation management practices on private game reserves in South Africa.

- **CHAPTER 4: THE ROLE OF THE TOURIST EXPERIENCE WITHIN WILDLIFE TOURISM**

  This section provides an in-depth literature study on the subject matter. This chapter provides an in-depth view of the importance of the tourism experience and factors that influence a memorable experience, and also the relationship between wildlife tourism and conservation management.

- **CHAPTER 5: EMPIRICAL RESULTS**

This section describes the results and findings after the empirical research was done and interpreted.

- **CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS**

The last section describes the key findings and provides recommendations to address the problem using information obtained in this study.

The next chapter will unpack the private wildlife industry itself in South Africa by discussing aspects such as the history, growth and the different pillars of the private wildlife industry in South Africa.

CHAPTER 2 - CONTEXTUALISATION OF THE PRIVATE WILDLIFE INDUSTRY OF SOUTH AFRICA

2.1. INTRODUCTION

As seen in Chapter 1, with an estimated 9 000 wildlife properties or farms covering an approximate area of 16 million hectares of land, three times greater than the state protected area network of the country (7 million hectares, all national parks, provincial parks and local government land together), it is proof that the private wildlife industry is being conducted on a very large scale in South Africa. The private wildlife industry has four pillars, as was briefly explained in the last chapter, which are game breeding and sales, hunting, game meat and wildlife tourism. Most farms/game reserves have more than one of these activities in order to diversify and make their operations more profitable (EWT, 2016:1).

During the 1960s, the wildlife industry was part of the agricultural sector, having few landowners using wildlife commercially. In the 1970s and 1980s, landowners realised that the sustainable use of wildlife could be financially viable (Davis-Mostert, Linsey, Taylor, 2016:1). In 1975, the presentation of the Parks and Wildlife Act handed owners the rights to wild animals found on their properties and the willingness of the government to sell wild animals from National Parks to farmers gave rise to a legitimate form of private wildlife ownership recognised and supported by the state (Zulu, 2015:108). Previously, wildlife was seen as unwanted competition for domesticated animals for limited grazing land. With time, it became clear that it could generate a much wider range of income possibilities from wildlife. Landowners started realising that the wildlife industry would be a good alternative option to normal farming or other agricultural activities (NAMC, 2006:iv).

Compared to the rest of the world, the conditions for agricultural production in South Africa are not as favourable. In most regions, the water resources are rare, with only 17% of agricultural land suitable for field crops and horticulture. Of the total agricultural land, 83% are represented by natural pastures. Many conservationists are in favour of converting marginal agricultural land into the wildlife industry, contributing more to natural systems (NAMC, 2006:iv). At the moment, due to South Africa's advantage on its ecosystems and wildlife, it allowed the wildlife industry to develop and to grow. This industry offers a large variety of activities, consumptive and non-consumptive (as will be explained later on this Chapter), and many of those activities occur on national parks and private game reserves (Fig, Reid, Magone & Leader-Williams, 2004:1).

This chapter aims to unpack the private wildlife industry of South Africa by discussing aspects such as wildlife tourism industry as part of alternative tourism, the history of game farms, the growth of this industry and the different pillars of the private wildlife industry of South Africa. The next section will address wildlife tourism as an alternative form of tourism.

2.2. WILDLIFE TOURISM AS AN ALTERNATIVE FORM OF TOURISM

Tourism is described as the largest and fastest growing industry in the sense of a distinct group or enterprises (Saayman, 1997:1) and can be defined as the total experience that originates from the interaction between tourists, job providers, government systems and communities in the process of providing attractions, entertainment, transport and accommodation to tourists (Saayman, 1997:2). A tourist can be defined as a person who contributes economically with regard to any area than in which he/she generally lives and works, or it can be defined as a person who voluntarily visits a place, away from his/hers normal place, for a period of at least 24 hours (Saayman, 1997:5). Some authors are of the opinion that tourism is not an industry, but a sector or an enormous economic activity (McIntosh, Goeldner & Ritchie, 1994:22; Theobald, 1994:26). However, there is some merit in retaining the simple ideas of supply and demand and of product and consumer, which are the basis on which an industry is defined, and that the tourism industry can indeed be classified as an industry (Saayman, 1997:1). Gee, Makens and Choy (1989:4) says that "the industry itself is more commonly identified with manufacturing and production-based enterprises". On the other hand, the tourism industry is not a single industry, but in reality, a collection of businesses that are selling travel-related services (Saayman, 1997:1).

The tourism industry can be divided into two categories, namely mass tourism and alternative tourism (Figure 2.1). Mass tourism includes large numbers of tourists visiting a destination, such as cities, beachfronts, amusement parks and other places where it is dependent on the number of people passing through. Therefore, volume is important. It includes people who are looking for a replication of their own culture in institutionalised settings with little cultural or environmental interaction in authentic settings. The reason why mass tourism is so successful is because of the interaction between the tourists and their destination, as it frees them from as many obligations as possible (Page & Dowling, 2002:23; Wearing & Neil, 1999:3).

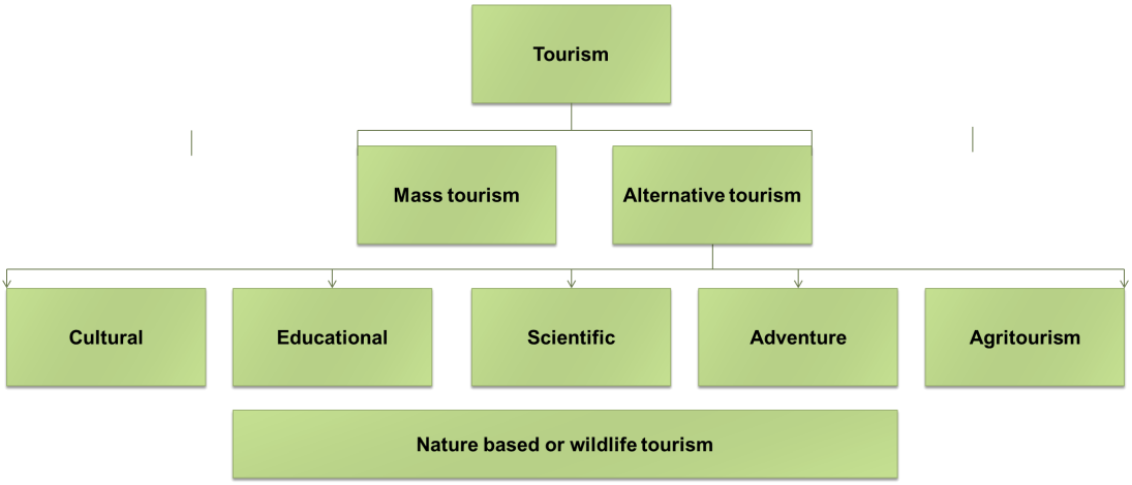

Figure 2.1: Alternative tourism
Source: Wearing & Neil (1999:3)

On the other hand, alternative tourism relies on natural, social and community values. It allows both hosts and guests to have a positive, worthy and shared experience (Wearing & Neil, 1999:3). This type of tourism consists of culture, educational, scientific, adventure and agritourism experiences (which include nature-based tourism, wildlife-based tourism and ecotourism) and it includes a variety of activities, from scuba diving to wildlife safaris (Els & Van der Merwe, 2016:2). Alternative tourism has as features: the preservation, protection and enhancement of the quality of the resource base important to tourism; a minimal impact on the environment; an emphasis on ecological and cultural sustainability; the endorsement of infrastructure, which leads to economic growth; as well as responsible tourism and low-impact tourism (Wearing & Neil, 1999:28).

For this study, there are three important concepts that form part of alternative tourism, namely wildlife-based tourism, ecotourism and nature-based tourism, which will be discussed next. According to the Cooperative Research Centre (CRC) for Sustainable Tourism (2001) and Higginbottom (2004:2), wildlife-based tourism can be described as “tourism that involves encounters with non-domesticated animals either in their natural environment or in captivity”. It includes a wide range of activities, such as bird-watching, whale-watching, general wildlife viewing, visiting zoos and aquaria, snorkelling, hunting and fishing. In this manner, wildlife-based tourism can also be described as “an area of overlay between nature-based tourism, ecotourism, consumptive use of wildlife, rural tourism and human relations with wildlife”, which is illustrated in Figure 2.2 (Page & Dowling, 2002:82) and each will be discussed next.

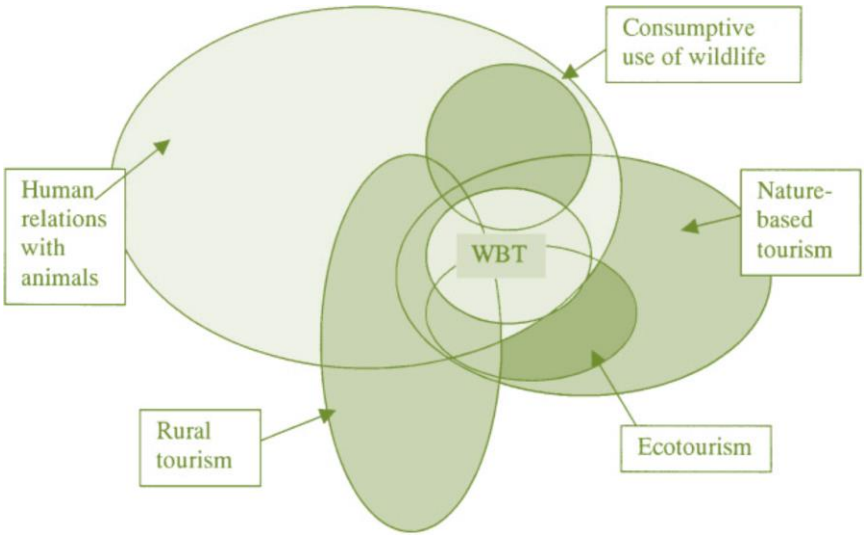

Figure 2.2: Wildlife-based tourism
Source: Braithwaite & Reynolds (2001:32)

Rural tourism

Rural tourism is based on some form of nature resource that takes place in an environment outside the urban area. It is a sector characterised by small-scale and dispersed tourism businesses set in areas where agricultural and forestry are predominant. It includes products such as rural attractions, rural adventure and nature-based tours, country towns, rural resorts and guest farms (Qongo, 2013:13). It is important to develop tourism in rural areas to increase participation of the local community in the development of tourism and to bring wider benefits to rural areas (Qongo, 2013:13). Rural tourism is concerned with wider issues of regional development in a farmed landscape, which may have substantial natural areas (Braithwaite *et al.,* 2001:32).

Human relations with animals

There is a large body of research about human relations with animals. The issues include the role of pets as therapy, animal rights, animal husbandry and aspects of wildlife management (Braithwaite *et al.,* 2001:32). According to Nimer and Lundahl (2007), the role of pets as therapy or animal therapy can be defined as "the deliberation inclusion of an animal/pet in a treatment plan" where "the introduction of the animal is designed to accomplish predefined outcomes believed to be difficult to archive otherwise or outcomes best addressed through exposure to an animal". Animal rights hold that animals cannot be, in any manner, abused. In other words, the only interactions humans should have with animals are those that occur on accident or those initiated by an animal (SAVF:3). And in contrast, animal husbandry refers to a sector concerned with animals that are bred for game products (such as meat, fibre, or other products) (SAVF:3). Wildlife management is the science of manipulating wild

animal populations and their habitats for specific human goals. Current definitions stress wildlife management as applied animal ecology that benefits the habitat and both wildlife and human populations (Yarrow, 2009).

From a human perspective, these relations can be positive or negative, and it results in a continuous need for assessment to manage potential human-wildlife conflict (Beurs *et al.,* 2014:43).

Nature-based tourism

Nature-based tourism can be best explained as tourism that takes place in a natural setting and is not mainly focused on wildlife. According to Backman, Allen and Becker (1992), there are practically as many definitions of nature-based tourism as there are tourists (Faulkner, Lawton & Weaver, 1999:7). For example, Hall and Boyd (2005) define nature-based tourism as "tourism in natural setting (example, adventure tourism), tourism that focuses on specific elements of the natural environment (e.g. Safari and wildlife tourism, nature tourism, marine tourism), and tourism that is developed in order to conserve or protect natural areas (e.g., ecotourism, national parks)" (Lundmark & Muller, 2010:381). Nature-based tourism is considered one of the fastest growing sectors of tourism as it incorporates all tourism that takes place in rich areas with natural features as well as activities connected with nature (Lundmark & Muller, 2010:381).

Ecotourism

Ceballos-Lascurain first defined ecotourism as "responsible travel to relatively undisturbed natural areas, with the object of studying, admiring and enjoying the natural landscape and its wild plants and animals, as well as existing cultural manifestations (both present and past) found in these areas" (Van der Merwe, 1996). Wearing and Neil (1999:xv) state that ecotourism involves travelling to relatively undisturbed or protected areas, fostering understanding, appreciation and conservation of the flora, fauna, geology and ecosystems of an area. Van Wyk (1995:8) defines ecotourism as "an enlightening nature travel experience that contributes to the conservation of the ecosystem, while respecting the integrity of the host communities". Ceballos-Lascurain later made some adjustments to his first definition and adds that ecotourism is "environmentally responsible travel and visitation to enjoy and appreciate nature (and any accompanying cultural features), that promotes conservation and sustainable development", has low visitor impacts, and provides for beneficial, active socio-economic involvement of local populations (Van der Merwe, 1996). The main aspects of ecotourism can be listed as follows:

- It is tourism that is conducted in natural areas or destinations;
- It must minimise the negative impact to the environment and the local people and build environmental awareness;

- It must increase the awareness and understanding of natural areas, cultural systems, and the involvement of visitors and their influence on the systems;
- It must contribute to the conservation and management of protected areas and other natural areas, such as game farms;
- It must contribute to the four pillars of tourism (hunting, breeding of game, wildlife tourism and game products);
- It must maximise the early and long-term participation of local people in the decision-making process;
- It must support human rights and democratic movement for local people;
- It must direct economic and other benefits to local people that complement rather than overwhelm or replace traditional practices (respect local culture) (farming, fishing and social systems) (Van der Merwe, 2004:28).

From the information above, one can see there are five main principles that are fundamental to ecotourism, namely nature-based, ecologically sustainable, environmentally educative and locally beneficial, and that generates tourist satisfaction. The first three principles are essential for a product to be labelled ecotourism, while the other two are viewed as being desirable for all forms of tourism (Van der Merwe, 2004:28).

As wildlife tourism and ecotourism are closely interrelated, it is important to explain the main differences between these two concepts (Table 2.1).

Table 2.1: Differences between Ecotourism and Wildlife Tourism

Definitions components	Ecotourism	Wildlife tourism
Management goals	Preservation and protection of resources	Conservation and resource management
Primary resource use	Natural resource and natural history of the area, including its indigenous cultures	Natural resources, natural history, and the present and historic cultures of the area
Primary tourists' motivation	Visit an ecosystem or undeveloped natural area for appreciation and to experience the environmental conditions	Visit an undeveloped area for appreciation and to directly experience the environmental conditions, or indirectly as a consumptive or non-consumptive recreational experience

Recreational activities	Non-consumptive appreciation and study of wildlife and natural resources	Non-consumptive appreciation and study, and consumptive use of wildlife and natural resources
The economic contribution of tourism to the area	Directly and indirectly contributes to the visited area, which supports the protection or preservation of the site and the economic well-being of local residents	Directly and indirectly contributes to the visited area which supports the conservation of the site and the health of the local economy
Visitor appreciation	The visit should strengthen the tourist's appreciation and dedication to preservation and protection issues at the visited area and in general	The visit should strengthen the tourist's appreciation of and dedication to conservation issues at the visited area and in general
Management of the public/private area	Implies a managed approach by the host country or region, which commits to establishing and maintaining the area with the participation of residents, marketing it appropriately, enforcing regulations, and using the economic benefits to fund the area's land management as well as community development	Implies a managed approach by the public and private sectors, which commit to establishing and maintaining the area, marketing it appropriately, enforcing regulations, and using the economic benefits to fund the area's land management

Source: Van der Merwe (2004:25)

Consumptive use of wildlife

Broadly, this can be divided into consumptive and non-consumptive wildlife-based tourism (Freese, 1998). Consumptive wildlife-based tourism occurs in different forms and involves the capture or killing of animals, and it can be in the form of hunting or fishing. These forms can also be valued for meat and the fish may be released after catching (Freese, 1998). Consumptive wildlife-based tourism such as hunting generates income from additional permits, and hunting fees from hunting equipment sales and from hiring of land vehicles (Milner-Gulland & Mace, 1998).

Wildlife tourism brings psychological benefits to tourists beyond those needed to preserve customer demand. It also brings financial benefits to companies, social benefits to host communities and it provides economic benefits to host communities or countries exceeding alternative sustainable resource uses (Higginbottom, 2004:6). The positive effects on the environment and wildlife may encourage the use of marginal agricultural areas for nature conservation, and through this natural

conservation can be retained. By doing this, it endorses conservation by showing the significance of natural areas to stimulate investment in the infrastructure, generating income and the importance of effective management of protected areas (Freese, 1998). For conservation to be successful in the long term, it needs to be promoted both inside and outside protected areas. It also needs to be combined with the realities of modern economies and with the people's needs (Higginbottom, 2004:10). It is also vital to take cognisance of inappropriate development caused by mass tourism that can degenerate protected areas and destroy local communities. To practise successful wildlife-based tourism, it is crucial to find the equilibrium between visitors' enjoyment and conservation needs (Freese, 1998).

The following section will explain the history and development of the private wildlife industry in South Africa.

2.3. WILDLIFE INDUSTRY IN SOUTH AFRICA

As early as 1900, the first game species became extinct, namely quagga and the blue buck, due to over-exploitation by humans. Trying to reverse this situation, colonial governments tried to protect the wildlife by banning all consumptive use at both commercial and subsistence levels. Although these changes had the aim of being conservation measures, the opposite happened, because landowners on private land had no incentive to protect wildlife. Instead of contributing to protect the wildlife, it became a problem for landowners because it was competing with domestic livestock and harbouring diseases. The result was either the neglect of wild species or deliberate eradication. Adding to the problem, livestock farming was encouraged through government subsidies and big state investment in infrastructure, disease-control and research, giving even less importance to wildlife (Davis-Mostert *et al.*, 2016:6). Numerous veterinarians and government agriculturalists were against wildlife conservation on private land because it was believed wildlife was unproductive and spread diseases, and there was also a lack of knowledge regarding the potential for using wildlife sustainably and productively. Although most farmers did not allow wildlife to remain on their land to mix with livestock, some farmers with bigger properties kept wildlife, and curiously these farms maintained higher land value than farms without wildlife (Davis-Mostert *et al.*, 2016:6).

During the 1950s, there was a growing recognition between international ecologists that the productivity of wildlife could be high, that it could provide an alternative source of meat to domestic livestock, and therefore the elimination of all wildlife was unnecessary. This was not well received by the South African community, so they continued focusing on the improvement of domestic livestock breeds and cropping systems. Only a few landowners developed business models based on the use of wildlife, but these landowners were stopped by the authorities that banned the

production and trade in wildlife by financial institutions who did not recognise wildlife as economic assets. Because wildlife was considered uncontrollable and a financial risk, it was impossible for the farmers to protect their loans and subsidies to help fund wildlife activities (Davis-Mostert *et al.*, 2016:6). Although at the time when it was recognised that it was sustainable to harvest wildlife for commercial purposes, there was still some resistance to using private land for this purpose. As an alternative, the commercial consumptive use of wildlife was encouraged in the 1960s on state land, including important reserves such as the Kruger National Park (KNP). In spite of the lack of help from the government, the industry was growing on private land, all because of the farmers themselves. This early growth of the private wildlife industry happened because the landowners wanted a place to enjoy wildlife rather than benefiting from it commercially (Davis-Mostert *et al.*, 2016:6).

The wildlife industry today has become a large and important economic activity in South Africa and increasingly can provide its source of animals to grow the industry, no longer requiring the capture of wild game from outside private lands. The scale of this economic and conservation revolution is easily measured. From two to three game ranches in the 1960s, there are now 9600, of which some 6000 are devoted exclusively to game; the balance having a mixture of game and domestic livestock. The average game farm measures approximately 2000 hectares, but together they constitute 21 million hectares. This is three times the area encompassed by all of South Africa's Provincial Reserves and National Parks put together (Mahoney, Flack & Mabunda, 2011).

Based on the information above, one can say that the South African wildlife industry grew due to two very important sectors. The first sector is the public sector or government (for example, national parks, provincial parks and local government reserves) and the second sector is provided by the private sector (of which includes the four pillars mentioned earlier). With the cooperation of these two sectors, it has resulted in a very effective cost and efficient access in all of Africa to a successful wildlife sector (Mahoney *et al.*, 2011). With the success of the cooperation of these two sectors, wildlife's population increased from an estimated half a million animals to 18.6 million. This growth in animals' population has led to a corresponding increase in hunting interest. The economic contribution from the hunting sector also brought benefits to a wider community than just the game farming sector itself. The growth of the wildlife industry has brought significant benefits to the country as a whole and generated some R10 billion annually just from hunting. If game sales are added it increases to almost R12 billion, which excludes game meat production and the translocation of the game (Van der Merwe & Saayman, 2014). The effect of this economic activity on employment alone is remarkable. The wildlife industry has been showing an increase in on-site employment opportunities by 3.5 times and the average height by 5.6 times, raising the average height bill on a property comforted from

domestic livestock farming to a tourism-based private game reserve by 20 times (Mahoney *et al*., 2011).

As seen above, the wildlife industry is a major force in the South African economy and the agricultural sector, but this is not the only sector where it makes a difference. This sector also contributes towards:

- Conservation: In the early 1980s, due to the increase in private wildlife tourism, the growth in the number of game in South Africa increased. Because of this increase, it added value to conservation areas in South Africa. Nowadays, more land is under private conservation (game farms/private reserves) than all the national and provincial parks together;
- Positive impact on nature: In order to protect the attractiveness of the game farms/reserves where wildlife-based activities are developed, these are usually cleared of old and unused infrastructures;
- Creates job opportunities: As the tourism industry is one of the largest industries in South Africa, it creates many job opportunities;
- Offers entrepreneurial opportunities - Due to the wildlife-based tourism activities such as hunting, game breeding, game capturing, game transporting, breeding of endangered species, and taxidermies, it creates a variety of entrepreneurial opportunities in different levels of the tourism industry;
- Develops infrastructure: As a result of the increase in the wildlife industry, the demand for more products and structures grows (e.g. roads, water and electricity supply), thereby offering the opportunity for more and better infrastructures to be created;
- Generates foreign currency: Due to the wildlife industry activities, such as trophy hunting, foreign wildlife tourists and breeding of scarce species, it generates foreign income for product owners and provinces;
- Stimulates other trades: Because it is hard to confine wildlife-based tourism, the wildlife industry also leads to other trades, such as conservation, taxidermy, meat processing, game breeding and products;
- Broadens education: When travelling to different destinations, tourists will learn new aspects they might have not known before, such as new cultures, people, places, nature, conservation and species;
- Reinforces preservation of heritage and traditions: Due to cultural and heritage tourism, tourists are more aware of the preservation of heritage and traditions;
- Leads to visual and structural change: It leads to the regeneration and modernisation of buildings on farms, as well as new uses for marginal, unproductive land and the re-use of neglected building (e.g. old farm houses) (Els & Van der Merwe, 2016:7).

Because wildlife in South Africa has a big economic value attached to it, it creates an incentive to manage the wildlife and to promote conservation goals (NAMC, 2006:8). From an ecological perspective, the wildlife industry has many benefits over livestock production, being far better suited to most of the biomes of South Africa. Wildlife reduces bush encroachment; and also, because they eat a broad section of plants, more game can usually be carried on the given area of land than livestock. Furthermore, game is more resistant to drought than domestic livestock, and large numbers of game occur in the arid/semi-arid regions of South Africa, where livestock and the growth of crops are not feasible. The wildlife industry has numerous advantages over livestock, as game is not nearly as susceptible to the many diseases as livestock. In general, game animals are far more resistant to resident diseases and parasites than livestock. From a food security and human health perspective, game farming provides venison, a very healthy form of protein, absent from growth proteins and steroids often present in other types of meat (Mahoney *et al.,* 2011).

South Africa has adopted a model of wildlife conservation that is different than other countries, which works for the wildlife industry in South Africa. The combination of the interests of the public sector of government and of the private sector of individuals wishing to make certain that wildlife will not be lost, and not just for political or personal reasons in the sense of self-gratification, but the idea that this resource and these landscapes are priceless on to themselves (Mahoney *et al.*, 2011).

The following section will explain the different pillars of the private wildlife industry in South Africa and will go into detail about each of the pillars.

2.4. PILLARS OF THE PRIVATE WILDLIFE INDUSTRY

Different farms have different opportunities for the owners. For example, a beautiful farm can be used for ecotourism, while a farm with a rich environment resource base but poor visual value would be better for an alternative wildlife-based enterprise. There has been a growing interest in using wild animals within multi-purpose systems over the past few years, such as including the production of meat coupled with added activities such as hunting, wildlife tourism and breeding. This has contributed to the emergence of game farming as a sustainable land use alternative to more conventional livestock farming systems (Cloete *et al.*, 2015:6). As stated earlier, the private wildlife industry in South Africa includes four main pillars, namely game breeding and sales, hunting, wildlife tourism and game products, such as meat and skin products (Figure 2.3) (Janosvky, 2015:1). Each of these pillars has their unique characteristics that will be discussed next.

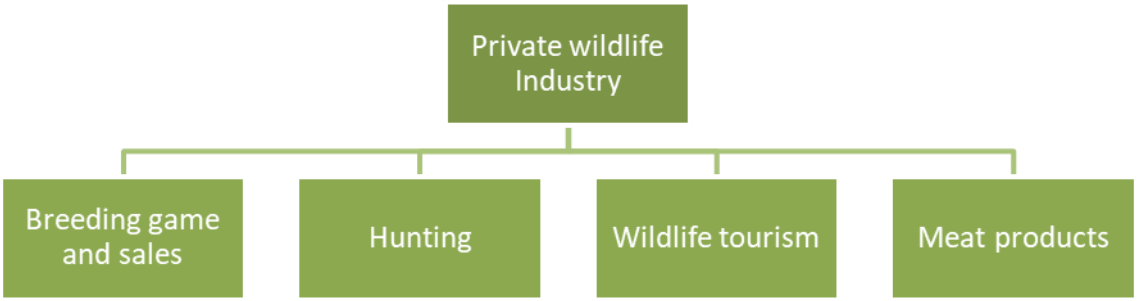

Figure 2.3: Pillars of private wildlife industry

2.4.1. WILDLIFE TOURISM (ECOTOURISM)

Not so long ago, before the occurrence of mass tourism, tourists were happy in seeing animals in zoological gardens. However, nowadays, most tourists prefer to see and interact with wild animals in their habitats and have a much more intimate experience. Wildlife tourism developed quickly after the Second World War in the form of wildlife viewing in national parks and game refuge on government or state-owned land (Sinha, 2001:3).

As stated earlier, wildlife tourism is based on encounters with wild animals. These encounters can happen in either the animals' habitat or in captivity. It includes activities such as, wildlife viewing; photography safaris; feeding; killing or capturing animals, particularly hunting and fishing (Higginbottom, 2004:2); hiking trails combined with game and bird watching; farm holidays; hospitality (conference facilities; traditional cooking opportunities or experiences); 4x4 trails, canoeing and abseiling for the more adventurous tourist; promotion of unusual attractions, such as caves, waterfalls, ruins of previous civilisations; provision of different types of accommodation, rest camps, tented chalets, chalets, luxury lodges, campsites, old farmhouses with an interesting character; horse safaris, walking safaris, mountain bike trails, donkey cart trips; educational tours where the tourist can learn more about nature; and antique shops where local people can sell their products (Els & Van der Merwe, 2016:13).

As seen in Chapter 1, wildlife tourism has become the leading and fastest growing sector in the tourism area, with 88% of all visitors to South Africa having some form of wildlife experience while visiting (Janosvky, 2015:2). It is estimated that wildlife tourism is growing every year between 10 and 15% (Els & Van der Merwe, 2016:12). Wildlife tourism focuses on fewer numbers of tourists to improve a better quality experience where tourists can learn more about nature. For many countries, wildlife tourism plays an important role in sustaining economic benefits while supporting

wildlife conservation and local communities. For this reason, governments, the private sector, the tourism industry as well as researchers have much more interest in tourism where tourists interact with wild animals (Els & Van der Merwe, 2016:2).

Wildlife tourism is a controversial issue. On the one hand, many conservationists and natural resource managers believe that wildlife tourism can threaten, in general, the integrity of ecosystems, and in particular, the dynamics and behaviour of wildlife populations. On the other hand, if properly managed, wildlife tourism can be an important tool for biodiversity conservation (Sinha, 2001:1). As wildlife tourism grows, so does the need to conduct research, as well as understand and manage potential impacts on the wildlife and their environment. Science and research, complemented by long-term monitoring, can contribute to increasing knowledge and better management (Moore Newsome & Rodger, 2009:645).

2.4.2. HUNTING

Hunting is the practice of killing or trapping animals or pursuing or tracking them with the intent of doing so. Throughout the existence of humans and animals, hunting has been the most important factor for their survival. Predators and humans relied on (and still do) antelope and bovine meat as a source of nutrition. Nowadays most civilized humans hunt as a mean of recreation, in contract to sustenance hunting (Beer, 2009:3).

The hunting industry in South Africa received a boost in its growth due to several factors, such as the ban on hunting in protected areas introduced by the Botswana government; the challenges faced by Zimbabwe's hunting industry through the largely failed land reform programme; and hunting bans and economic instability in several former major hunting destinations in Africa (Els & Van der Merwe, 2016:12). In South Africa, hunting can be divided into two different categories: biltong hunting (meat hunting) and trophy hunting (Beer, 2009:3), and are the main driving force behind what is believed to be the largest sector of the wildlife industry in South Africa (Els & Van der Merwe, 2016:12). The concept of biltong originated in South Africa, and is a type of cured meat that is made from various types of meat, such as beef and game. According to Van der Merwe *et al.* (2004:106), biltong hunting is a cultural activity, during which wildlife is hunted with a rifle, bow or similar weapon to produce a variety of game meat (venison) products, such as biltong and salamis (Rossouw, Van der Merwe & Saayman, 2014:379). Biltong hunting is an activity performed by South African citizens with the aim of hunting to gather game meat, for personal use or to sell to local butcheries. More and more South Africans are reverting to game meat for cooking purposes because it is healthier compared to domestic animals. Among the favourite species for consumption are kudu, gemsbok, blue wildebeest, springbok, blesbuck and impala (Van der Merwe & Du Plessis, 2013:11).

Unlike biltong hunting, trophy hunting is a form of hunting, also referred to as professional or safari hunting, where a foreign tourist enrols in a hunting experience as a hunter and has a professional hunter to guide him/her on the hunt, either for specific species or several different species. The main goal is to ensure a trophy quality animal (for example, horn length, skull size), and most of the time the animals are adult males of specific species (Beer, 2009:4). The trophy hunting industry of South Africa has clients from all around the world, with statistics estimating the number of hunters in South Africa, the United States of America and Europe (Beer, 2009:25). During 2005, the number of hunters visiting South Africa from the United States of America was 4310 (53.87%), followed by hunters from Spain 524 (6.55%), Germany 340 (4.25%), France 285 (3.57%), Denmark 270 (3.37%), England 238 (2.89%) and others such as Austria, Belgium, Norway, and the United Arab Emirates (Beer, 2009:26). The most requested animals for trophy hunting are some of the Big 5 (five most dangerous game to hunt, which include lion, buffalo, elephant, black and white rhinoceros and leopard) and plains game such as kudu, springbok, blue wildebeest and gemsbok (Van der Merwe & Du Plessis, 2013:21).

The hunting sector has an important role within the wildlife industry, as it creates the demand for trophy breeding, contributes to wildlife tourism, as hunters and their families visit wildlife protected areas, and increases the demand for wildlife products. In South Africa, due to private ownership, one can expect the growth of the hunting industry as the game numbers and hunting locations continue to grow. This growth has also been positively impacted by the growth in the breeding of game, resulting in improved volumes, genetics and the availability of better trophy animals. On the contrary, international hunting locations are decreasing because of the decline in international game numbers (Janosvky, 2015:1).

2.4.3. GAME BREEDING AND SALES

Game breeding and sales refer to farmers breeding wildlife to be sold either at auctions or privately. Between 1990 and 2000, most plains game species were bred for hunting purposes with only a few species entering into the live trading market of these animals. A small number ended up on farms with non-consumptive business models with the majority that was reintroduced to breeding herds on hunting farms. During this time, it was not very popular the marketing of the wildlife through formal live auction system due to the production costs (capture, transportation, etc.) as the real mean price of these species remained depressed (Els & Van der Merwe, 2016:11).

The breeding industry as we know it today consists of three areas, namely breeding of plains game species, high value or endangered species breeding, and the breeding of colour variants. A fourth category can be added, and that is the breeding of predators, such as lion, leopard and cheetah. Recent progress in the breeding and live sales

industry of higher value and colour and morphological variants offered the motivation for large-scale innovation and infrastructure development in the country, which helped the process of marketing live game animals. Furthermore, the recent increase in the average auction prices of especially plains game species contributed towards the attractiveness of breeding game animals for live sales (Els & Van der Merwe, 2016:11).

The animals that are classified as higher value game species include, among others, species such as buffalo, rhino, sable and roan antelope. The category colour and morphological variants consists of species such as golden blue wildebeest (also known as golden gnu), golden gemsbok, black and white impala, as well as the various springbok and blesbuck colour variants. Finally, the category of plains game includes gemsbok and springbok (Els & Van der Merwe, 2016:11). Due to the breeding and sale of high-value game, it was necessary for an intensification of the breeding systems with the purpose of improving the utilisation of the natural resources. For example, the fact that zebras graze the upper stems of grass while wildebeests graze on leaves, improved the sustainability of grazing land, but needs to be managed more intensively. Breeding farms do not need scenic beauty, because until now, it has been based on money and it has a tax advantage that stimulates the investment. The main weaknesses of this industry are the disease outbreaks, the high barriers to entry regarding capital investment and the lack of updated information (Janosvky, 2015:2).

The current prices and the successive profitability of game breeding, especially regarding higher-value and colour morphological variants, had declined tremendously due to a decline in demand for these animals, as supply exceeded demand. Even though game breeding will remain central in terms of economic contribution and the successive growth of the wildlife industry, we can see that the growth rate and the successive contribution from the specific segment are already decreasing, but will still play an important role in the wildlife industry (Wildlife Campus, 2015:40). Due to the success of the wildlife industry at the moment, the commercialisation of certain endangered species might need reconsideration (Janosvky, 2015:3).

2.4.4. GAME PRODUCTS

Game products are any material that comes from the body of an animal that is later on sold. It consists of various products such as horns, game meat, skins, feathers, eggs, medicine, curios, shoes, clothing, furniture, jewellery, handbags and fashion accessories of which game meat is the biggest (Janosvky, 2015:3).

Until now, the local game meat market has been a small/young industry because of consumers' perceptions, regulations and the general focus of the wildlife industry. For most of the private wildlife industry's existence, the farmers focused most on breeding game animals to be hunted or to be sold to farms with non-consumptive or wildlife-

based tourism business models; game meat was only consumed by those who hunted and their family (Els & Van der Merwe, 2016:13). Most game farmers still do not respect the mass harvesting or culling of game animals for either the local or export market as a lucrative marketing avenue. Because there was a potential risk of disease outbreaks (such as bird flu) and also due to the resulting ban on game meat export, the market would still be at risk. This risk gets bigger due to a lack of a well-established local game meat industry (Els & Van der Merwe, 2016:14).

In South Africa, commercial game meat production must adhere to all the legal requirements in the Meat Safety Act 40 of 2000. Legislative change is needed to develop a regulated market for game meat to ensure safe, quality game meat and traceability of the product. To use game animals for meat, it must be dressed in an approved, registered slaughter facility and inspected by an independent game meat inspector. It is important to have this requirement to ensure meat quality and food safety, but the commercial use of carcasses of hunted trophy animals cannot enter an abattoir as the carcass can be contaminated (Cooper & Van der Merwe, 2014:251; Zerbst, 2015:3). However, the export market holds significant growth potential for local game meat producers and exporters (Els & Van der Merwe, 2016:14).

Fortunately for the game industry, the old traditional consumption markets (such as trophy and biltong hunting) cannot keep up with the change in land use from livestock farming to wildlife ranching (Janosvky, 2015:3). Although the game-product market still needs to be developed, there is a definite export opportunity (Janosvky, 2015:3).

The following section will deal with three measures of the contribution of the wildlife industry.

2.5. CONTRIBUTION MEASURES OF THE WILDLIFE INDUSTRY

The wildlife industry is really important as it plays an important role in sustaining economic benefits and at the same time supports wildlife conservation and local communities. This brings a great deal of interest to governments, the tourism industry, the private sector and researchers as they have more interest in tourism based on visitors interacting with wild animals (Els & Van der Merwe, 2016:2).

As seen in this chapter, the wildlife industry has three major measures of contribution, namely economic, conservation and social. These three measures will be discussed next.

According to Ritchie and Goeldner (1994), and cited by Saayman *et al*. (2011), the economic impact is “the net change in a host community that results from (the) spending in a given area”. Weisbrod and Weisbrod (1997) stated that the economic

contribution to a specific activity or sector is classified as the effects on the level of the economic activity. It can be measured according to different sectors, such as the business production, the value added or GDP (gross domestic product), the employment and, as well as the wealth or aggregate personal income (Cloete & Rossouw, 2014:2). Tisdell and Wilson (2004) and Tisdell (2006), state that the economic contribution of the wildlife industry can be determined through different approaches. These include welfare economics or economic impact analysis. Welfare economics involves social cost-benefit analysis, and it implies that the economic worth or value of wildlife conserved or consumed as a result of a specific programme should be compared to the cost of the programme. If the net benefits are positive it shows the programme is economically viable, and the larger the net economic becomes, the more it increases (Tisdell, 2007; Weisbrod & Weisbrod, 1997). According to Tisdell (2007), the most common method used to determine the value of wildlife is by estimating "the maximum amount of money tourists would pay for the continuing presence (or consumption) of the wildlife" (Cloete & Rossouw, 2014:2); therefore, willing to pay.

The wildlife industry plays an important economic role in the country through its different pillars. With these pillars, the landowners develop several activities to grow the sector and to be more profitable. As the wildlife industry is an immense part of the economy of the country, it brings financial incentives from the government, stakeholders and others to conserve, preserve and maintain wildlife. The growth of the wildlife industry might be a suitable way to prevent the extinction of numerous species in the wild. When the numbers of certain species decline to a point where these animals can get extinct, the prices on the market get higher, motivating the industry to increase the numbers of those species. This means that an increase in the monetary value of the species will result in an incentive to conserve and preserve the wildlife. Once the number of species starts to increase to a point out of the extinction zone, the prices will start to decrease (NAMC, 2006:7).

As mentioned earlier, the wildlife industry brings positive effects to the environment and wildlife, which encourages the use of marginal agricultural areas for nature conservation and because of that, natural conservation can be retained. By doing this, it endorses conservation by showing the significance of natural areas to stimulate investment in the infrastructure, generating income and the importance of effective management of protected areas (Els & Van der Merwe, 2016:4). Therefore, conservation has an important role in the sustainable wildlife industry because it takes part in the modern sustainable society, and conservation like that can be a challenge in many areas because of its various dimensions. There are many parties involved, stakeholders are involved in all areas of wildlife industry and governments, and other partners are crucial as they play an important role in guaranteeing proper legislative protection and resources for conservation. For day-to-day results, habitat managers

(conservation NGOs, private landowners, protected areas and traditional owners) have big responsibilities when it comes to managing the wildlife industry and to succeed in being sustainable, and the involvement of community groups also plays an important role as they offer political, financial and intellectual support for wildlife-based tourism projects (Els & Van der Merwe, 2016:15).

As mentioned above, one can say that the tourism industry is an enormous part of the conservation of wildlife because it contributes to impact alleviation activities, monitoring and scientific research, etc. When tourists are satisfied with their experience, they will tell friends and family, which leads to more tourists, and this will bring more benefits to host indigenous and local communities (WGEA, 2013:25).

It is important to know how the different pillars from the wildlife industry contribute to conservation. The following are of importance:

- Wildlife tourism
    - Different species are conserved. Sustainable game ranch production principles have led to an increase in the number of game animals in South Africa since the early 1980s. Game ranches have been vital in promoting the recovery of species such as the bontebok, black wildebeest, Cape mountain zebra, sable antelope, roan antelope and white rhinoceros;
    - Financial incentives for conservation are created. Game farms have created financial incentives for the development and retention of wildlife as a land use. Tourism (hunting and ecotourism) has been a key stimulant behind the shift to game farming from livestock farming on private land in South Africa (Van der Merwe & Du Plessis, 2013:38).
- Breeding game and sales
    - When it comes to breeding game, it is important to place the different species on the correct grazing land for better production and feeding availability. For instance, zebras feed on the upper stems of the grass and antelopes feed on the lower stems, while wildebeest graze on the leaves. The fact that different species feed on different types of food, helps to conserve and keep grazing lands sustainable (Van der Merwe & Du Plessis, 2013:7).
- Trophy hunting
    - Trophy hunting has some features that allow the industry to play an important role in conservation outside of national parks and where alternative wildlife-based land uses such as photographic ecotourism may not be viable (Lindsey, Romanach & Roulet, 2006:461).
    - When trophy hunting is well monitored, it is naturally self-regulating, because modest off-take is necessary to guarantee high trophy quality and therefore marketability of the area in future seasons. Therefore,

off-takes for many species are well below available quotas. On a local level, financial incentives for sustainable hunting are expected to be most effective where the same hunting operators are given tenure over hunting areas for multiple seasons.

- Even though trophy hunting was the original cause of many species' extinction, low off-take rates indicate that trophy hunting can play an important role in the conservation of endangered species. When species are critically endangered, there is a need to do a complete cessation of all mortality caused by humans. Meanwhile, important incentives for careful management, protection and reintroductions may come from profits coming from tightly regulated trophy hunting. On private land, trophy hunting has helped the recovery of several endangered species, such as the bontebok, black wildebeest and Cape mountain zebra, due to financial incentives for reintroductions. Likewise, the recovery of the population of white rhinoceros grew due to incentives from trophy hunting, which encouraged landowners to reintroduce them onto their land. Trophy hunting also plays an important role in the rehabilitation of wildlife areas by allowing income generation from wildlife without risking the growth of trophy species population (Lindsey, *et al.,* 2006:461).
- The financial incentives from trophy hunting effectively more than double the land area that is used for wildlife conservation, relative to what would be conserved relying on national parks alone. There are numerous ways that trophy hunting creates incentives for wildlife and habitat protection, such as state-owned business, where people cannot enter and wildlife is protected (example, safari areas in Zimbabwe), areas where local communities and wildlife live together, but wildlife is the primary land use, and finally, areas where wildlife is not the primary land use, but the incentives from trophy hunting helps with conservation and with the sustainable use of natural resources (Lindsey, *et al.,* 2006:462). From a conservation perspective, the most important contribution of the trophy hunting industry is the provision of incentives that promote wildlife as land use (Lindsey, *et al.,* 2006:463).

Because of the value that is given to rare game, the wildlife industry has managed to restore wildlife to the land and improved and restored the genetics of South Africa's wildlife. The legal trade, the scarcity of wildlife and the hunting and tourism industry were the cause for the growth of the wildlife industry (Dry, 2013:7). A great benefit that the wildlife industry brings to the local communities is the cost-effective job opportunities that are created and the income generated. Furthermore, it creates opportunities for formal and informal entrepreneurship and also helps to stabilise and

promote the uniform flow of money and prosperity between rural and urban areas (Saayman, 2009:78). The wildlife industry also helps with various necessities that local communities need, such as education, recreation and social contact. The industry serves as a stimulant for the improvement of community welfare, as well as improvement of local services and facilities, such as better shopping centres, post offices, public transportation, improved roads and other infrastructures (Saayman, 2009:78).

This industry contributes to the economy, conservation and nature; it offers jobs opportunities, it improves infrastructures, generates foreign currency, broadens education, reinforces the preservation of heritage and traditions and others. Because this sector has such a big economic value attached to it, it creates a large incentive to manage wildlife and to promote conservation.

2.6. CONCLUSION

This chapter aimed at providing an overview of the wildlife industry in South Africa by discussing aspects such as history, growth and looking at the different pillars included in the private wildlife industry in South Africa, as well as the contribution measures of the industry.

The wildlife industry experienced exceptional growth since 1980. Today, the industry has approximately 9000 game farms and covers several hectares of land.

The private wildlife industry includes four important pillars: hunting, wildlife tourism, game breeding and sales, and game products. Due to these four pillars, the wildlife industry in the private sector is in a great spot with further growth opportunities (Janovsky, 2015:3), where all of these pillars make a remarkable contribution to socio-economic prosperity in South Africa, also making a substantial contribution to conservation (Cloete *et al.*, 2015:31).

The wildlife industry has three major measures of contribution that play an important role in sustaining economic benefits and at the same time supporting wildlife conservation and local communities. It plays an important economic role in the country through its different pillars, as landowners develop several activities to grow the sector and to be more profitable. As the wildlife industry is an immense part of the economy of the country, it brought financial incentives from the government, stakeholders and others to conserve, preserve and maintain wildlife. With the growth in the wildlife industry, it has created more job opportunities to employ local people, and the industry helped with various necessities that local communities needed, such as education, facilities, social contact, among others. Not only does the wildlife

industry help the economy of the country, but it also helps to preserve and conserve the wildlife, and helps local communities around those private areas.

The next chapter will discuss the history of biodiversity conservation in South Africa and conservation management practices used on private game reserves.

CHAPTER 3 - CONSERVATION MANAGEMENT PRACTICES ON PRIVATE GAME RESERVES IN SOUTH AFRICA

3.1. INTRODUCTION

For thousands of years, human activity has been changing the South African ecosystems, increasing rapidly with agricultural and industrial development. Recent estimates suggest that agriculture, urban developments, afforestation, mining and dams transformed a substantial proportion of natural habitat. To add to the loss and degradation of the habitat, the overexploitation of certain species, the introduction of certain species, and the pollution of the soil, water and atmosphere have had major effects on the terrestrial, freshwater and marine biodiversity of South Africa. Many important ecosystems have been degraded and ecological processes impaired. This situation is not improving, and the growth of human populations and the unsustainable rates of resource consumption will result in increasing negative impacts on biodiversity. A large part of the biodiversity, including the life-support systems upon which we rely, will soon be lost if nothing radical is done (Staatskoerant, 1997:14).

Since 1995, due to South Africa's ratification of the Convention on Biological Diversity, there have been substantial achievements in conservation, which include the development of a national policy on biodiversity and the expansion of area under conservation protection. Regardless of this policy and legal framework, biodiversity is still being lost in South Africa, holding the second highest number of threatened species out of the 19 southern African countries. The primary causes of species and habitat loss are conversion to cultivated land, followed by urban sprawl, alien plant invasion, and plantation forestry (Cousins *et al.,* 2008:1).

It is thought that the recent expansion of privately-owned wildlife farms in South Africa has had a great potential contributing to conservation in the country. As learned in Chapter 2, the large-scale conversion of livestock farms to game farms (to name but a few, as a result of legislative change and the provision of excess animals from protected areas to private owners) led to numerous species being reintroduced to former domestic livestock farms (Cousins *et al.,* 2008:2).

The aim of this chapter is to unpack conservation management practices in South Africa on private game farms/reserves. This chapter will focus on the conservation management practices on private game farms/reserves in South Africa. However, a glance at the biodiversity conservation history in South Africa is provided first.

3.2. HISTORY OF BIODIVERSITY CONSERVATION IN SOUTH AFRICA

Conservation has been practised by indigenous people of South Africa for many years before the arrival of Europeans. Evidence was found that showed that the use of elaborate natural resource management systems by indigenous African people was present long before the arrival of Europeans. Proof of this is found in most traditional African societies as they were dependent on natural resources, including the wildlife surrounded them. It had then implanted a set of rules and procedures by the political systems of that time to regulate the use of those natural resources. Examples of those procedures included the setting aside of hunting preserves for Zulu royalty, soil conservation methods of people from Botswana, and totemic protection among people such as the Basotho. This reflected a close relationship between traditional societies and nature, which linked people to the environment through a strongly spiritual and cultural ethic. With the colonisation of South Africa, these systems changed substantially and in particular with the intensification of hunting activities by European settlers, the acquisition of guns by local people, and the ranching of cattle, sheep and goats. After colonisation, as a response to diminishing resources, it was promulgated that some people would protect gardens, lands, and trees from destruction and the natural resources upon which the Dutch East India Company depended (Staatskoerant, 1997:15).

According to Staatskoerant (1997:15), “Proclaimed regarding of the Cape Forest Act of 1888, the first official protected areas in South Africa were the forest reserves of Knysna and Tsitsikamma. This was followed by the establishment of forest services in Natal and in the Orange Free State and Transvaal, in 1891 and 1903, respectively. Also established during this period, as a response to declining wildlife numbers and uncontrolled hunting, were a number of statutory game reserves, specifically the Pongola and Sabie Game Reserves in the Transvaal in 1894 and 1898 respectively, the Hluhluwe, Umfolozi and St. Lucia Game Reserves in Zululand in 1895, and Giant's Castle in the Drakensberg in 1903, Kruger National Park in 1925 and Tsitsikamma National Park later on. The location of such reserves was in many instances pre-determined by the presence of tsetse fly and malaria, or by the fact that their agricultural potential was poor”.

After Union, the establishment of protected areas was often accompanied among black people by forced removals and resource dispossession. During this period, the main approach prevailing was that protected areas should be pristine and fenced-off areas. Those approaches resulted in the perception that protected areas were playgrounds for privileged people, and that biodiversity conservation is exclusive and irrelevant to most people of South Africa (Staatskoerant, 1997:16).

It is safe to say that South Africa and everyone in charge of managing biodiversity have made remarkable accomplishments towards achieving the conservation of its natural heritage. This country is globally known by its nature conservation practices and gained this reputation due to its well-developed systems of protected areas in the country and by its efforts towards conserving threatened species. Due to the country's recognition, previous government policies have been helpful of biodiversity conservation and helped to develop the scientific capacity to manage biological resources. Over the past 30 years, there have been extensive efforts through conservancies, natural heritages sites, community conservation areas, and cooperative conservation models such as biosphere reserves, in order to expand functions for nature conservation to private and communal lands (Staatskoerant, 1997:16).

The next section will explain the definition of conservation and wildlife conservation.

3.3. CONSERVATION

According to Van der Merwe and Saayman (2004:19), "conservation can be described as the way in which the earth's resources are put to use to such an extent as to preserve it for future generations and the support of all forms of life on earth. Conservation is a way of looking at the world and a way of action, based on that point of view. Those who see the world this way seek to provide for the existence of the greatest possible diversity and variety of life on earth. Through this they hope to achieve for humanity not only a better chance for continued survival, but also the opportunity for living in a world of richness and abundance in which the full range of human hopes and dreams can be pursued" (Van der Merwe & Saayman, 2004:19).

"Wildlife conservation is the regulation of wild animals and plants in such a way as to provide for their continuance" (Wildlife Conservation, 2012:1). A simpler definition of wildlife conservation is the management of species through sustainable practices to ensure future generations can also enjoy it. There are many efforts with the aim of preventing the depletion of present populations and to ensure the continued existence of the endangered species. Those efforts involve the establishment of sanctuaries and controls on hunting, use of land, the importance of exotic species, pollution and the use of pesticides (Wildlife Conservation, 2012:1). Wildlife conservation's role is to maintain the balance of various ecosystems. In all countries of the world, there are indices of immeasurable contributions that wildlife species have made to human development, using several kinds of animal species for traction, power generation, clothing, research, medicine, sports, tourism and entertainment. Human activities such as bush burning, damming rivers, draining swamps, environmental pollution, hunting and poaching are threatening wildlife's existence (Olatunbosun, 2013:1).

According to Saayman (2009:60), “one of the basic principles of wildlife conservation involves providing adequate natural food and shelter to maintain populations of each species in a given habitat”. Wildlife faces the destruction of habitat through drainage, agriculture and urban expansion, and fragmentation of habitat into parcels too small for wildlife populations to use. Another threat that affects wildlife is the illegal trade of feathers, horns, ivory, skins and organs. Hunting regulations allow the take of many species without affecting population levels, and can even help control species that have grown too abundant for the region they inhabit. Wildlife is an important biological, economic and recreational resource that can be maintained through careful management.

The following section will describe conservation management in private game reserves in South Africa.

3.4. CONSERVATION MANAGEMENT IN PRIVATE GAME RESERVES

People have been living in African savannahs for at least 250000 years, modifying patterns and processes through resource utilisation and land management. Most of the time, the impact of humans on landscapes is only considered in areas outside of game farms/reserves, but even in protected areas, humans influence the landscape dynamics by altering fire frequencies, bush clearing, as well as the introduction and removal of animals. With only 12% of the earth’s surface formally protected, there is a need to manage ungoverned natural areas to ensure that all aspects of biodiversity are conserved. Many game farms/reserves are managed to protect key species that are threatened with extinction, but there is a shift towards protecting ecosystems as arenas for biodiversity rather than the conventional species-centric approach, especially in the face of climate change (Fisher *et al.,* 2014:1).

As mentioned in Chapter 1, Saayman (2009:358) states that game reserve management depends on three main aspects, namely ecotourism management, conservation management and general management (Figure 3.1).

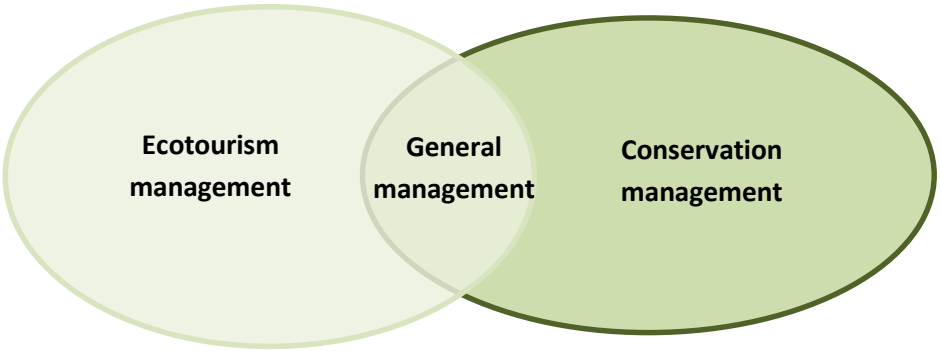

Figure 3.1: Categories of game reserve management
Source: Saayman (2009:358)

As seen before, ecotourism management is the process of tourism management that, according to Saayman (2009:346) consists of four main core aspects, namely transport, accommodation and catering, entertainment and attractions management. General management is usually unique to individual protected areas. It includes the core tasks of planning, organising, leading and controlling. These tasks are usually conducted within the functional areas of management, which may include finance, human resources, programmes, marketing and facilities (Saayman, 2009:369). Saayman (2009:375-381) notes that conservation management involves various aspects that need to be addressed in game reserve management, namely game introductions, educational facilities and water points, to name but a few. This will be discussed comprehensively in the next section, namely 3.5, as this forms part of the core discussions of the research.

One of the most important aspects of game reserves is conservation management. Periodically, the owner/manager must determine "how much" must be managed. Game capture, harvesting, transport and reintroduction of the game are specialised processes and if this is handled correctly, game mortality is reduced (Saayman & Van der Merwe, 2004:125). The science of conservation management has evolved rapidly over the past few decades. In the past, many landowners thought that they could manage their game farm/reserve without professional help, but that opinion has changed dramatically. It is a necessity to manage a wildlife area according to an ecological conservation management plan, to ensure healthy wildlife populations and healthy habitats. The idea that any fenced-off wildlife area would manage itself and find its natural equilibrium has rapidly vanished (Wildlife Campus, Module 1, 2013:2).

There are different options and purposes for wildlife areas, which will determine the management approach that should be used. Game farms/reserves are often managed with a view of maximum sustainable utilisation of the wildlife resources. Game farms/reserves and national parks are managed to conserve biodiversity and encourage ecotourism (Wildlife Campus, Module 1, 2013:2). Depending on the

landowner's capacity, private game farms/reserves have different levels of conservation management, as well as different conservation opportunities. Therefore, different private game farms/reserves can have different conservation management practices or maybe have a few similar practices. Later on, the most common conservation management practices on private game farms/reserves will be listed and described.

Game farmers can play a major role in erosion and soil condition, as soil deterioration and siltation of marshes, dams and rivers are prominent results of soil erosion. The advantages that result from this type of management are more apparent than those derived from, for instance, controlled veld fires, as well as on the restoration of old crop fields and cattle farming infrastructure. By establishing vegetation in dongas and erosion ditches, erosion control provides more protection for a host of animal types and improves the area's veld and habitat quality. Southern Africa's natural resources are being more exposed as time goes by due to the unavoidable utilisation thereof and by the increasing competition for space. Private game farms/reserves that are being managed effectively and correctly will play a more important role in southern African conservation and at the same time maintaining a viable harvest. However, the owner/manager will always have to keep important ecological limits and principles in mind (Bothma, 1996:3).

The following section will show the importance of having conservation management practices on private game reserves.

3.5. IMPORTANCE OF CONSERVATION MANAGEMENT PRACTICES

Crises in conservation take many forms, and good management, in equally varied forms, is the appropriate response. Management requires an eclectic set of approaches, because there are many different challenges, all of which are strongly influenced by the environmental and social context within which they occur. There is no theoretical specific base for conservation management, but good management approaches have a strong dependence on the wealth of theoretical and empirical studies in biology. There is also no particular or specific field that teaches people on how to be a good conservation manager. Management approaches have changed through the years and will continue to evolve (Carroll & Meffe, 1997:348).

Conservation in the wildlife industry is challenging. In South Africa, the small size of many game farms/reserves intensifies these challenges as there is a need for more intensive management. Small enclosed game farms/reserves prevent natural dispersion, dispersion of juveniles, emigration and the immigration of new individuals that create diversity in local gene pools. Besides, Boone and Hobbs (2004) show that

the fencing of parcels of land reduces the carrying capacity of a landscape, consequently reducing the number of game that can be supported. Therefore, it is the owner/manager's role to regulate the number of certain species on the game farm/reserve, to manage their gene pool and also to regulate the predator-prey ratio, for those with predators (Cousins *et al.,* 2008:11). The need to fence properties can lead to fragmented landscapes and genetic isolation, and can encourage overstocking and range degradation, especially on small fenced properties where trophy hunting and meat hunting take place (Child *et al.,* 2009:149). It is also concern the hybridisation, extra-limital introductions and disease transmission. Some owners of private areas enhance wildlife tourism by clearing woody vegetation and manipulating the landscape. A disadvantage of bad management can be the non-natural wildlife mix, which means the tendency to understock animals for which the hunting interest is little, as well as those that are potentially damage causing, such as predators. The latter contributes to gene pools, healthy ecosystems and biological control, but impacts negatively on the commercial viability of the enterprise. Moreover, many of the current game reserves are too small to contain large enough populations of predators to keep their populations genetically fit (Child *et al.,* 2009:151).

According to Child *et al.* (2009:398), "central to conservation best practices are a number of key components, including a fundamental understanding of the ecological patterns and processes that inform the goals of the organization, and adequate and concise management plans that detail the specific conservation requirements for private lands, based no clearly defined objectives that address critical threats". It is vital to monitor systems to assess ecosystem health and management impacts, as is the necessity of integrating science and management to inform the need for and the consequences of interventions. Management also needs to be driven by conservation and must utilise the most appropriate tools to achieve its objectives (Child *et al.,* 2009:398). According to Carroll and Meffe (1997:350), "conservation management, while critically important, is only a set of tools and approaches whose usefulness and appropriateness are measured by the extent of which they contribute to the long-term conservation of natural patterns and processes".

The next section will describe the different conservation management practices used on private game reserves.

3.6. CONSERVATION MANAGEMENT PRACTICES

The following are the most common conservation practices used on state and private game reserves in South Africa, such as water points, waste water, roads, removal of structures, bush-encroachment control, soil erosion reclamation, veld fire management, veld management, alien plant control, stocking rate and grazing capacity

of large herbivores, disease control, waste management, game introductions, bomas, release ramps and holding pens, game counting, game capture, loading, transportation and unloading of wild animals, predator management, problem animal control and culling.

3.6.1. WATER POINTS

It is important to take into account the topography, geohydrology, plant communities, soil types as well as the movements and drinking habits of the different types of game when planning the distribution of artificial waterholes (Bothma, 1996:565). The availability of water effects the distribution and movement of the game. Therefore, the distribution and seasonal availability of water have a major influence on the degree to which the vegetation is used (Bothma, 1996:565).

In large natural areas, it is common for certain areas to get underutilised, while overutilisation occurs in others. When the area is underutilised, the grazing becomes too tall and moribund and dead material accumulates, so game tend to avoid these areas since the food is less palatable. When underutilisation and overutilisation occur in the same area, it means that it is caused by poor distribution of waterholes and poor veld-burning practices. When waterholes are well distributed and are not situated too close to each other, this will lead to better game distribution and a more even utilisation of the veld (Bothma, 1996:565).

In large natural areas, where natural water occurs, the so-called summer grazing areas are distinguished, and these are grazed only during the rainy season. When permanent artificial waterholes are established in those areas, it may result in game staying permanently in these areas leading to overgrazing and trampling of the veld. Therefore, it is important that the artificial waterholes are controllable and managed. Rotational grazing can be accomplished by closing the waterholes in over-utilised areas (Bothma, 1996:565). The following are:

Requirements for ideal watering points:

- “Sufficient water must be economically available”;
- “Design must meet drinking preferences of animals”,
- “Watering points must be controllable (be opened and closed)”;
- “Must limit loss of game (eliminate competition)”;
- “Site must be taken into consideration (for over and under grazing)”;
- “Watering-points must be permanent and reliable during droughts”;
- “Sufficient shade in vicinity”;
- “Watering-points must not be established on watersheds and highly erodible ground”;

- “Quality of water must be good”;
- “Watering-points must be as natural as possible” (Saayman & Van der Merwe, 2004:92).

Different types of watering-points:

- “Dams in rivers and streams”;
- “Artificial earth dams”;
- “Along with reservoir”;
- “Natural pans”;
- “Rivers”;
- “Lakes” (Saayman & Van der Merwe, 2004:92).

Location of watering-points:

- “Must be on level ground”;
- “Clay ground restricts draining of ground”;
- “Do not locate watering-points in sweet-veld, especially on brackish patches as this increases erosion”;
- “Not nearer than 100m from view point or hide”;
- “When large numbers of game drink at one trough, another must be built 40-50m away”;
- “Watering-points that are too far apart can result in certain parts not being utilised, and if they are too close to each other it increases over-utilisation and tramping” (Saayman & Van der Merwe, 2004:93).

Control of diseases and parasites:

- “During winter, game concentrates in greater numbers, creating ideal conditions for spreading contagious diseases”;
- “The concentration of game results in large numbers of parasite eggs being left behind in the faeces”;
- “The area must be fenced off once a disease has broken out at a water point”;
- “The water points surrounding the infected area must be drained to form a safety waterless zone free of parasite host species” (Du Toit, 1996:101).

3.6.2. WASTE WATER

Waste water consists of clean water that is wasted, i.e. black water emanating from toilets, as well as grey water produced in the kitchen and ablutions. It is necessary to pay attention to grey and black water in the waste handling process, while an efficient system needs to be devised to reduce the volume of clean water being wasted. To develop the appropriate systems to manage this volume of waste water effectively, it

is important to determine the quantity and quality of the waste water (Saayman, 2009:378).

The volume (quantity) of the waste water depends on the systems that are installed, and the quality depends on the amount of:

- Human waste;
- Fats, oils;
- Detergents;
- Disinfectants;
- Soaps;
- Shampoos;
- Conditioners;
- Food scraps that are introduced into the water system (Saayman, 2009:378).

There are several systems that reduce the quantity of water used, such as toilets (low flow/composting toilets) and showers and basins (limit volumes available to visitors) (Saayman, 2009:378).

3.6.3. ROADS

On a game farm/reserve the roads must be placed with care as they are a disturbance of the natural environment.

There are four types of roads that apply to game farms/reserves:

- Tourist roads;
- Fire-belts (fire-breaks or fire-paths);
- Hunting roads;
- Rest camps and staff accommodation (Saayman & Van der Merwe, 2004:94).

3.6.3.1. TOURIST ROADS

This type of road gives tourists the opportunity to watch wildlife. Depending on the amount of traffic it will determine whether or not the road is built. These roads play an important role in veld management, as it can be used as fire-belts.

The following are important aspects of tourist roads:

- “Can’t be too straight, but rather winding through the veld”;
- “It must run close to water points”;
- “Roads between different plant species provide the tourist with different plant habitats along the road”;
- “Viewpoints, big trees, mountains and cliffs do play an important role along tourist roads”;

- "A well-developed road network is valuable, but it is sometimes more practical to have only one good road, which makes the maintenance less expensive" (Saayman & Van der Merwe, 2004:94).

3.6.3.2. FIRE-BELTS (FIRE-BREAKS OR FIRE-PATHS)

According to Saayman and Van der Merwe (2004:94), these roads must meet the following requirements:

- "Works as natural divisions between different plant communities";
- "Must be at least 5m wide and convex to prevent submergence";
- "Sufficient drainage must be situated next to the fire belts to prevent further submergence. It is necessary to be careful as the ground can erode".

Main roads play an important role in veld management too, as they can also be used as fire-belts (Saayman & Van der Merwe, 2004:94).

3.6.3.3. HUNTING ROADS

These roads must enable the hunter or vehicle to deliver any hunted or captured game to the skinning or holding facilities without any delays. They can also be used as fire-belts (Saayman & Van der Merwe, 2004:95; Du Toit, 1996:109).

3.6.3.4. REST CAMPS AND STAFF ACCOMMODATION

Roads for a rest camp can be divided into two: supply roads and pedestrian roads. The width of the supply roads must be determined before being constructed. Vehicles are usually two meters wide, so the road must have at least half a meter on either side. The road width can be extended to seven meters for two vehicles, if the speed limit is high and the road is full of turns (Saayman & Van der Merwe, 2004:95).

Road surfaces are determined with consideration of the following factors:

- "Nature of the terrain";
- "The type of vehicle that is going to use the road";
- "Available funds";
- "The purpose of the road" (Saayman & Van der Merwe, 2004:95).

The importance of conservation management is that roads should be built on the writing surface as well as in the correct area, for example on clay ground it is always a problem when it rains. One solution for this is to cover the surface with gravel to lift the height of the road (Saayman & Van der Merwe, 2004:95). According to Saayman and Van der Merwe (2004:95), "loam ground causes few problems and can be cost effectively upgraded with ionic ground stabilisers".

In the case of crossings, it can be used planting casing that will divide the surface into small blocks and each block can be filled with ground, gravel or cement. It is used as a stereo aerial photo of an area to determine the location of new roads, it is marked a possible route on it that can be evaluated and adapted in the veld. Pedestrian paths are an internal circulation within rest camps and should not be crossed by vehicle roads. These paths can be built with compacted ant-hill, using square bricks for paving (Saayman & Van der Merwe, 2004:96).

It is important to highlight that the ecological influence of roads is an important conservation management aspect that need to be managed. Therefore, the approach must come from a conservation management point of view.

Ecological influence of roads:

- "Construction work destroys plants and small animals";
- "Poorly planned roads can create erosion problems";
- "Fire-belts serve as escape routes for game";
- "Animals use roads as routes between watering-points";
- "Impala and wildebeest often sleep on the roads";
- "Stormwater drains serve as breeding places for warthogs, jackals and hyenas";
- "Baboons and monkeys acquire begging habitats";
- "Pioneer plants attract rabbits and steenbok";
- "Snakes bake in the sun on roads";
- "Ground birds breed next to roads";
- "Tarred surfaces become slippery and animals can slip and fall";
- "Nocturnal animals are often killed by motor vehicles";
- "Gravel quarries (pits next to roads supply out of season water to animals and lead to over-utilisation of certain roads";
- "Roads influence the movement of timid animals" (Saayman & Van der Merwe, 2004:96).

3.6.4. REMOVAL OF STRUCTURES

According to Brandt (2013), during the conversion process from cattle farms and crop fields to game reserves, some infrastructures were removed or destroyed to make way for the open space for wildlife (Zulu, 2015:255). Therefore, it is possible to find on game reserves old structures that once belonged to old game cattle crop farms. Among these structures, the majority are old houses, outbuildings, ruins, reservoirs, windmills, cattle fences, car wrecks, wells or burrow pits (Saayman, 2009:381). However, because many old infrastructures were left behind due to previous cattle farms and crop fields, national parks and game reserves are suffering from current erosion problems (SANParks, 2008:82). To prevent this in the future, when introducing

new infrastructure, it should be non-permanent (tented and wilderness camps), using natural building materials and designs that fit into the environment (Du Plessis, 2010:53).

3.6.5. BUSH-ENCROACHMENT CONTROL

All types of veld are subject to invasion by certain grasses, forbs, woody dwarf shrubs, shrubs and trees. These types of invasion usually occur when the ecosystem is either naturally or artificially disturbed (Bothma, 1996:557). According to Bothma (1996:557), "exotic plant species are in many cases well adapted to local conditions and displace the indigenous plant species, while toxic plants also invade or multiply in certain areas due to poor veld management practices".

According to Bothma (1996:558), there are multiple factors that can cause bush-encroachment. Here are some:

- "Incorrect grazing practices (under- or overutilization) decreases the vigour and water utilisation of grasses near the soil surface and increases the capacity for competition of the woody species";
- "Weakening of the grass stratum by drought or by human disturbance (abandoned fields, shifting cultivation)";
- "Misuse of burning, for example to stimulate out-of-season growth, and late burning, when the grass has already begun its spring growth, seriously retards grass development and in this way provides the woody component with a strong competitive advantage";
- "Absence of game migrations";
- "Absence of browsers, or the presence of grazers only";
- "Absence of factors which cause tree damage (for example, the uprooting and ring-barking of trees by elephants)";
- "Presence of insect plagues (for example, locusts)".

In the patch-mosaic burning programme, woody plants are usually eliminated to the point that the diversity objectives are achieved. It is important to initiate large-scale bush-control programmes and bush clearing projects, as the veld-burning programme will impact on bush encroachment. If not done properly, and if there is no follow-up procedure, this can be very expensive (Saayman, 2009:380).

3.6.6. SOIL EROSION RECLAMATION

Although soil erosion is a natural geomorphic process, there must be a process of minimising the acceleration of soil loss due to unsustainable land-use practices and development. This is best achieved by the wise use of fire and by preventing

overgrazing by large herbivores. According to Saayman (2009:380), “the normal sheet and gully erosion that is found should be left to rehabilitate without management intervention as it is, firstly, very expensive and, secondly, difficult to distinguish between which erosion is merely the result of a natural geomorphic process, and what is the result of unsustainable land-use practices”.

It is important to understand the cost-effectiveness of mechanical techniques of soil erosion control. The following general considerations are applicable to erosion control:

- “The costs must be compatible with the value of the farm”;
- “The main aim is erosion control, but if this control can also meet other requirements, for example, damming of water or the creation of a vlei (shallow minor lake) area rich in birdlife, then all better”;
- “Mechanical control measures must be planned and carried out carefully so that they do not cause more harm than good”;
- “Continuous maintenance of all structures is necessary”;
- “Local sources of material and labour are preferable”;
- “The erosion control programme must be an integral part of the development and management plan of the reserve” (Bothma, 1996:577).

3.6.7. VELD FIRE MANAGEMENT

Although fire is regarded as a natural ecological factor in the grasslands and savannahs of the world, it is commonly caused by lightning in these areas. There are three types of fire, namely ground, surface and crown burns. The distinction between the names is based on the level where the vegetation burns. A ground burn is, as the name implies, a fire that burns beneath the surface of the soil in thick layers of organic material or remains from plants. A surface burn is a fire that occurs in the herbaceous layers. Finally, a crown burn is a fire that includes all levels, and also shrubs and the leaf canopy (Bothma, 1996:562).

Different types of vegetation growth react differently to fire and grazing. In veld management, veld burning is done for the following reasons:

- “To remove old, unacceptable or dead plant material accumulated from previous seasons, before it has a smothering effect on the desired grass species”;
- “To destroy or suppress unacceptable woody or herbaceous invasive plants which reduce the productivity of the grass layer”;
- “Making firebreaks to protect the grazing”;
- “Burning parts of an area to stimulate rotational grazing”;
- “To control parasites, such as ticks” (Bothma, 1996:562).

It is unacceptable to burn if it is used to stimulate the new growth of grazing out of season; for example, in the summer, autumn and winter when there is no or little green, edible material present. It is questionable to use fire to eliminate invasive species, unless the burn is followed up by introducing browsers (Bothma, 1996:562).

3.6.8. VELD MANAGEMENT

According to Saayman and Van der Merwe (2004:186), "South Africa is divided into two veld types, firstly the general structure and composition of the veld and secondly, seasonal user classes on the grounds of the seasonal quality of the fodder (grass) production". It is important to classify according to the types of veld because it gives important information regarding the animal best suited for the specific type of veld, whereas classification based on seasonal quality influences the system of animal production (Saayman & Van der Merwe, 2004:186).

It is important to understand the dynamics and interaction between the veld, climate and the animals to ensure sustainable animal production. It is also important to understand that game production is dependent on the quantity and quality of the food produced, either whether it is for ideal veld conditions or bad veld conditions. Regarding this issue, it should be pointed out that the optimal functioning of an ecosystem depends on the following:

- "Effective absorption and conversion of sun energy to chemical energy through plants (the better the veld quality, the more effective the process as well as the use of moisture)";
- "The absorption of vegetative, chemical and vegetative energy while the animal is grazing and the changing thereof into meat, milk and fibre" (Saayman & Van der Merwe, 2004:186).

The dispensation of rain within a year as well as within different years has the primarily influence on the total food production, although the total annual rainfall also plays an important role in the production potential of the veld. The better the condition of the veld, the smaller the impact on rainfall variation on food production, which will lead to more sustainable and stable animal production (Saayman & Van der Merwe, 2004:187). According to Saayman and Van der Merwe (2004:188), "in an extensive animal production system, the stock load that is applied by the farmer on the farm becomes the manageable dependent variable which has the biggest influence on the biological output of marketable animal products, the economic sustainability of the farmer and the veld conditions in the long-term". The applied stock loads and the biological needs of the veld must provide in the financial expectations of the manager (Saayman & Van der Merwe, 2004:188). The animals must be able to make the best use of the available food to ensure sound veld management and the optimal use of a certain veld type. The amount of vegetation that animals use will primarily depend on

the way those animals have adapted to the specific vegetation and the environmental circumstances of the area. Animals' eating and grazing habitats differ as well as their impact on the vegetation. It can be selected, specific species or a combination of species to make optimal use of a certain type of vegetation. In this manner, the veld composition can be changed, depending on which types of plants/vegetation are most used. Which means the animal species' grazing habits play an important role when determining the animal composition (Saayman & Van der Merwe, 2004:189).

The effectiveness of any pastoral animal production system depends on the following factors:

- "The amount, quality and seasonal dispersion of food production, which is a function of the ground type. The amount and seasonal dispersion of rainfall and the access to irrigation";
- "The amount of food used by the animal";
- "The effectiveness with which the animal consumes the food, uses and transforms it into a useable product" (Saayman & Van der Merwe, 2004:189).

3.6.9. ALIEN PLANT CONTROL

In South Africa, invasive alien plants (such as black wattle, Engelmann's prickly-pear, kangaroo thorn) are a problem, as they cause serious problems in natural and semi-natural systems. Invasive alien plant impacts include reduced surface water runoff and groundwater reserves, increased biomass and fire intensity, markedly reduced biodiversity and many economic consequences. When short vegetation is replaced by dense stands of invasive alien trees, the water use increases. Fuel loads at invaded sites increase fire intensities and cause soil damage, increase erosion and decrease germination from indigenous seed pools. If the spread of alien plants is not controlled it could eliminate several thousands of plant species, seriously affecting the delivery of ecosystem services (Higgins, Richardson & Van Wilgen, 2001:1).

The introduction of alien plants in parks and game reserves must be forbidden, even in staff gardens and at tourist accommodation units (Saayman, 2009:379). According to Saayman (2009.379), "the objectives is thus to remove all alien plants from the facility. Plans for eradicating alien plants must include at least a five-year follow-up procedure and be based on the latest control technology and knowledge".

3.6.10. STOCKING RATE AND GRAZING CAPACITY OF LARGE HERBIVORES

According to Bothma (1996:547), "the number of the game by which a given game reserve surface is grazed (stocking rate, previously called carrying capacity), is generally accepted as one of the most important factors which affect animal production and the condition of the grazing". The effect of veld condition and specific

stocking levels depends on the inherent production capacity of grazing, which is determined by factors such as soil type, climate and veld type. The inherent capacity of grazing, mentioned before, refers to that stocking rate (number of livestock units per hectare or hectares per livestock unit) that can be applied without causing deterioration to the veld due to overutilisation or underutilisation (Bothma, 1996:547).

There is a certain maximum sustainable stocking rate for each type of animal in a grazing area, which may vary according to fluctuations in environmental conditions (maximum animal production per hectare) (Bothma, 1996:547). The large herbivore population stocking levels should be between the ecological and economic carrying capacity of the ecosystem. Saayman (2009:380) says that "these objectives will be attained by adhering to the principle that bulk grazers should be stocked at a high proportion of the total stocking rate".

3.6.11. DISEASE CONTROL

It is a symptom of an ecological disturbance when diseases break out in nature (Du Toit, 1996:510). Disease management needs to be planned in a way that it results in maximum effectiveness with minimum ecological disturbance (Du Toit, 1996:511).

Animal diseases may have serious consequences on the reserve. According to Saayman (2009:376), "provision has to be made regarding controlling diseases as far as possible, to ensure that diseases are not transferred to domestic animals of surrounding communities. This must be monitored regularly". Some of the most important diseases known in the industry are mentioned below:

- Anthrax: "is caused by a bacterium, which forms spores when it comes in contact with the atmosphere. The bacteria produce a toxin which causes conditions in the body that are favourable for the multiplication of bacteria and which cause a breakdown of the defence mechanisms of the body. The animal then dies due to secondary shock" (Du Toit, 1996:499).
- Tuberculosis: "This disease is transmitted via contaminated droplets, released when contaminated animals cough and susceptible host breaths the droplets in. Other excretory products such as urine, faeces and milk also carry the bacteria and can contaminate the food and water of game" (Du Toit, 1996:500).
- Brucellosis: "Is a highly contagious disease which is caused by a bacterium. The bacteria are usually taken in orally, but animals can also be contaminated through the eyes, wounds and the reproductive canals. Contaminated predators excrete the organisms in this faeces and urine and can serve as a disease reservoir" (Du Toit, 1996:500).
- Rabies: "Is an acute, deadly disease which can affect all warm-blooded animals. The disease is caused by a virus of which there are various known strains. Transmission of the rabies virus usually occurs when a susceptible animal is

bitten by an infected animal. The disease can, however, also be transmitted using close contact with infected saliva" (Du Toit, 1996:504).

3.6.12. WASTE MANAGEMENT

A waste management programme that is environmentally friendly needs to be in place to ensure that pollution does not occur on the reserve, and that all forms of waste are removed from the reserve. This is especially true of areas where there will be many tourists (Saayman, 2009:377).

Waste consists of:

- "Hard waste: paper, tins, glass, plastic, and kitchen waste";
- "Waste water: clean, grey, black" (Saayman, 2009:377).

Reductions in waste generated in the site are possible through the following:

- "Planning the management and preparation of food";
- "Accurately matching food quantities to tourist numbers";
- "Maintaining a high quality of food offered";
- "Disposal practices and recycling strategies";
- "Maximising the use of compostable food and";
- "Sorting and recycling waste" (Saayman, 2009:377).

Hard waste can be substantially reduced and controlled by several factors, such as:

- "Minimising potential hard waste being brought to the site and needing to be managed";
- "Suitable construction processes and prefabrication";
- "Using recycling building materials and components";
- "Investing in enduring materials, servicing systems and components which reduce maintenance and prolong operative life";
- "Using compostable foods and establishing a compost area in site for use with a permaculture vegetable sit growing organically";
- "Purchasing food and operational items in bulk to reduce packaging";
- "Using linen and fabric kitchen towels, napkins and table cloths, which can be laundered and re-used, instead of paper";
- "Providing visitors with any necessary personal items such as toiletries, drinks, and snacks which could be brought in bulk";
- "Using alternatives to aerosol products such as refillable pump action containers";
- "Using recyclable or biodegradable packing as a last resort";

- "Ensuring that recyclable waste leaving the site will be properly processed and disposed of in a sustainable way" (Saayman, 2009:378).

A waste management strategy should be developed that includes sorting, sage, storage and disposal, as well as a strategy to reduce, recycle and re-use old waste and materials. It should provide enough secure storage space (Saayman, 2009:378).

3.6.13. GAME INTRODUCTIONS

Many species have been lost from the ecosystem, meaning they cannot longer be found in areas where they were present in the past. These are species that were incompatible with human activities, such as large mammalian predators and many large herbivores. Another example of the disappearance of species is the changes to the habitat due to human development. Sometimes, it is necessary to restore populations that have been lost, or to reinforce populations that have declined (SANParks, 2006:42).

According to SANParks (2006:42), the following general principles govern the introduction of species into game reserves:

- "The introduction should only take place if there is good evidence that the species occurred in the area in historical times. It is recognized, however, that anthropogenic climate change may modify the ranges of many species, and that it may in future be necessary to promote the spread of individuals into areas outside their historical ranges. This would be contemplated only if climate change (or other anthropogenic factors) had so modified the habitat in the historical range that the survival of the species could no longer be assured there";
- "The quality of the habitat is important, and therefore the introduction is subject to a scientific assessment of the amount and quality of habitat for the species in question";
- "Consideration should be given to whether the original causes of extinction have been removed";
- "The potential impact of an introduced species on the ecosystem needs to be considered. This is important especially for large predators as they may impact on prey species";
- "Disease considerations may also be important";
- "Where there are different subspecies or ecotypes of a species, care is taken to introduce only the subspecies or ecotype that was most likely to have occurred in the region in historical times";

- "Where possible, individuals for introduction into a reserve are chosen from the geographically nearest possible source, or otherwise the source that is most similar to the reserve regarding habitat conditions";
- "A sufficient number of individuals should be introduced, as this is a critical factor influencing the success of reintroductions. For mammals the success rate increases with increasing numbers of founders, up to a level of 20-40 individuals. Increasing the numbers beyond this level is not associated with a substantial increase in success rate" (SANParks, 2006:42).

3.6.14. BOMAS, RELEASE RAMPS AND HOLDING PENS

If it is necessary to handle the game on a game reserve, to have game auctions or to keep the game in an enclosure or holding pens for a period of time, it is more advantageous to have a permanent set of holding pens or bomas on the reserve (Ebedes, Van Rooyen & Du Toit, 1996:127). Down below, the most common structures are listed and described.

3.6.14.1. BOMAS

Bomas are enclosures to hold animals temporarily, either to tame them or to facilitate veterinary inspection during quarantine periods. The period necessary to hold animals before releasing them is four to six weeks. In the animals' respective home ranges in the wild, they know exactly where to find food, shelter and water. Bomas are a way for the animal to settle down easier, providing a mini-habitat where all these requirements are close at hand. Once the animals feel comfortable with those requirements, they become settled and can be released (Grange, 2006:249).

3.6.14.2. RELEASE RAMPS

The ramp should be of easy access to large vehicles to unload the animals. It should jut out from the boma wall to ensure a close-fitting between the offloading vehicle and the ramp. The ramp should also be built to accommodate trailers, and therefore it is not necessarily excessive backing up and repositioning, which takes time and is also stressful for the animals that are inside the crate and the others already in the boma (Grange, 2006:254). Grange (2006:249) says that "the ramp should be at least 1.5 times wider than the width of the unloading door, preferably wider, to accommodate the width of the truck itself". This will help the offloading through the double rear doors. The ramp's sides should be solidly constructed and covered to the top and forward of the edge completely, to ensure a close fit with the crate preventing escapes from animals over the sides (Grange, 2006:254).

3.6.14.3. HOLDING PENS

In contrast to bomas, pens are considered multifunctional facilities for the management of animals before they are moved elsewhere, for quarantine purposes, for treatment of injuries, for auction purposes and as receiving or sending facilities for import and export (Grange, 2006:249).

3.6.15. GAME COUNTING

This is something that needs to be done every year, to determine how many animals there are and to identify any problems within specific species. For example, some species may have a higher growth rate than other species, so one will have to count them to determine how many of each species there are (Saayman, 2009:376).

There are different techniques to count game on a reserve that will provide a practical result. One can use one technique or a combination of techniques. However, there are a few important aspects that will influence which technique should be used for a specific game reserve. The first consideration is for research and management objectives for the area (Van der Merwe & Saayman, 2004:126). The second aspect to consider when preparing a game count is the features of the area where the counting place will take place. Factors such as the size of the area, topography, plant growth, water and man-made structures should be considered (Van der Merwe & Saayman, 2004:126). A third aspect is the nature of the animals that are going to be counted. Factors such as colour, size, mobility and population density will influence which technique should be used (Van der Merwe & Saayman, 2004:126). Finally, the fourth aspect is the cost of the count. If the objectives of the count are not meeting the expected counts, consideration must be given to relaxing the objectives (Van der Merwe & Saayman, 2004:126).

It must be taken into consideration in the planning of the count, the expertise/knowledge and attitude of the counters, because cheap, unskilled labour cannot be used in the application of techniques where subjective decision-making is necessary and could add considerable risk. Therefore, it is very important that the chosen technique falls within the intellectual and physical capabilities of the counters (Van der Merwe & Saayman, 2004:126).

The next section will explain the different techniques of game counting.

3.6.15.1. DRIVE COUNTS

This technique is usually used in small areas with open grass plains and opened bushveld, although it can also be used in larger areas if adapted. The most important requirement for this technique is to have enough and skilled people who can count and distinguish between the different game species. Drive counts give a total count on

smaller areas, but on larger areas, it gives an estimation of the number of game in a random check (Van der Merwe & Saayman, 2004:126).

3.6.15.2. ROAD-STRIP COUNTS

As mentioned earlier, game reserves have ordinary tourist roads and fire breaks, and sometimes the game can be seen from the road and can be counted. According to Saayman and Van der Merwe (2004:128), "the average visibility next to the road can be determined similarly as for drive (on) counting, or to estimate all the game that can be counted from the middle of the road and recorded". It must be marked with flags so that game outside the strips are not counted by mistake, if the counting happens on fairly open veld and if permanent visibility is used (Van der Merwe & Saayman, 2004:128).

The area counted is the total rod length multiplied by the average visibility distance. The starting point, type of vehicle and speed must be the same each year. If there are enough counters all the game can be counted on both sides of the road; in case there are not enough counters, the counting can only be done on one side. If game are afraid of vehicles, this counting is not suitable as the animals will flee before they come into sight of the counters (Van der Merwe & Saayman, 2004:128).

3.6.15.3. VELD-STRIPS COUNTS

Very similar to road-strip counting but, in this technique, routes are previously marked in the veld by GPS (Global Satellite Positioner) coordinates. Every route must be followed by at least two counters (on foot or horseback), and the game counting in the strip must be done the same way as in the case of road-strip counts. The strips must not be longer than 2km and it should be at least 1km apart from each other. The observers need to stop every 100m to let the game calm down, and strips in the same habitat need to be counted by the counters simultaneously (Van der Merwe & Saayman, 2004:129).

3.6.15.4. FAMILIAR GROUP OR INDIVIDUAL

According to Van der Merwe and Saayman (2004:129), "where game occurs in fixed herds an indication of their numbers can be acquired through regularly noting the number and composition of every herd encountered". The populations can be well estimated over time by regularly photographing the animals and building up a register (Van der Merwe & Saayman, 2004:129).

3.6.15.5. RATIO TECHNIQUES

This technique is based on a change in the ratio of two age groups (e.g. lambs to adults) or generations after a known number of animals have been added or removed. In this technique, the comparison of the age, gender and number ratios of two

different animal species is used. This is also required to record the number, specie, age and gender of the removed animals (Van der Merwe & Saayman, 2004:130).

3.6.15.6. AERIAL COUNTS

The best time of the year to count game is when the visibility is maximal, for example, in the grass-veld it would be best after the first rains, as the grass is green, and the animals are more visible against the green. Although this technique is very expensive per unit, it is very quick and accurate and saves a great deal of time (Van der Merwe & Saayman, 2004:132).

It is really important, when doing a game count from an aeroplane, to take into consideration the length and width of the strip. The width of the strip will depend on the visibility of the game, the experience of the observers and the speed of the aeroplane. In general, game can be counted in strips of 100m wide on each side of the aircraft. Small areas are much more easily counted than bigger areas, and the total counts can be given for small areas in less than an hour. A GPS can be used to calculate fixed strips, or it can be placed markers on the fence to mark the strips, but the strips can also be marked with well-known landmarks, such as windmills or dams (Van der Merwe & Saayman, 2004:132).

3.6.15.7. WATERHOLE COUNTS

This type of counting is time consuming and requires many observers who need to stay at the waterhole for a continuous period (24-48 hours). The idea of this technique is that each animal will visit the waterhole at least once a day to drink so that all animals could be counted on a particular day. This technique does not give an accurate count, as some animals, such as impala, can drink once a week in the wintertime and can even stay without water for longer during the summertime. It is also dependent on how much water is available in the veld (Van der Merwe & Saayman, 2004:135).

3.6.16. GAME CAPTURE

There are two different techniques to capture game on a game reserve, namely the mass capture technique and chemical capture technique. The type of technique the owner/manager chooses will depend largely on the game they want to capture.

However, before starting the process of capture, there are a few aspects the owners/managers need to consider:

- “Costs: the high cost of capture-equipment, the high cost of hiring a helicopter, hiring additional help, suitable vehicles, vehicles for transporting game, equipment such as darting-rifles and darts, anaesthetics, tranquilisers, antibiotics and other medicine, purchasing of nets and plastic material, fodder for the animals that have been captured, suitable holding facilities”;

- "Game species: certain species can only be captured by the use of one technique, while other species can be captured using more than one technique";
- "Capture area: the choice of an area, for example dense bush, open grass plains, mountainous terrain, marshes and rivers must be taken into account when determining which will be the most effective, safest and cost-effective technique";
- "Number of animals that are captured: the number of animals that must be captured largely determines the capture technique that will be used";
- "Planning a game capture: certain aspects that need to be considered like the species and the number of animals to be captured, physical condition of the animal, gender ratio and age, time of year, the terrain, anaesthetics and tranquilisers, nature conservation permits for animals to be captured, import and export permits for animals to be captured and, veterinary transport permits" (Van der Merwe & Saayman, 2004:136; Ebedes, Du Toit & Van Rooyen, 1996:271).

3.6.14.1. MASS CAPTURE TECHNIQUE

This type of technique is the most frequently used for capturing game. The mass capture technique consists of the following: plastic boma technique, nets, pop-up holding pens, passive capture techniques, net guns (cannon), lasso, night-capture and the use of helicopters (Van der Merwe & Saayman, 2004:137). The different techniques are explained next:

- "Plastic boma technique: the basic principle of this technique is that animals are driven down a large plastic funnel; the animals regard the plastic funnel as a solid wall and seldom attempt to escape from the funnel. Some animals do escape from time to time by jumping over the plastic wall. Once the animals are trapped, by closing the plastic curtains across the entrance they are chased directly into a solid side crush and then up a loading ramp into a game-transporting vehicle" (Van der Merwe & Saayman, 2004:138).
- "Nets: nets can be used for active as well as the passive capture techniques. Two basic techniques consist of erecting active capture nets – taut nets that remains in position when animals are captured and, drop nets that fall onto the animals when they run into them. Capture with nets is an old and popular technique that is cheaper than the plastic boma technique. The nets are also strong, do not weather rapidly and can also be used repeatedly. Nets are easier to erect, and less material and labour required. The type of animals to be captured determines the mesh size. The animals are chased in the direction of the nets with the help of people on foot, on horseback or in vehicles" (Van der Merwe & Saayman, 2004:144).

- “Pop-up holding pens: is based on the principle that the animals are cornered in a plastic boma that is hidden in a furrow surrounding the capture area. A special trigger mechanism activates the pen. It can, for example, be located around watering points. It can also be erected in other places and the animals can be lured there by additional fodder, feeding blocks and salt licks” (Van der Merwe & Saayman, 2004:149).
- “Passive capture techniques: is seen as one of the best ways of capturing game without causing much stress to the animals. The passive capture technique works much the same as the permanent holding pens. A camp is also built around a waterhole or feeding point. The difference is that the game is not chased into the camp, but the opening is controlled automatically, and the moment game come to drink it closes again automatically. The development of such pens is very simple. A fence is built around a water point or feeding place, but it must be done in separate places so that the game can become used to the structures” (Van der Merwe & Saayman, 2004:149).
- “Net guns: there are a few professional game catchers in South Africa who use net rifles in special circumstances to capture large antelope in open areas” (Van der Merwe & Saayman, 2004:150).
- “Lasso, lariat and noose handle: the game is chased by pick-up trucks or horses and captured with lariats or noose handles. This technique is not recommended because the animals have to run at fast speeds and the stress factor is high” (Van der Merwe & Saayman, 2004:149).
- “Night-capture using searchlights or spotlights: this technique can be successfully used to capture impala and nyala, because they are easily blinded by strong lights and can then be handled. These catches must be arranged for moonless nights” (Van der Merwe & Saayman, 2004:150).
- “Helicopters: this technique can be utilised in three ways (to chase animals to a capture area, darting with tranquiliser darts, and capturing animals with the help of a net rifle)” (Van der Merwe & Saayman, 2004:150).

3.6.16.2. CHEMICAL CAPTURE TECHNIQUE

This type of technique is mostly used when certain individuals must be captured or when dangerous individuals need to be handled.

The capture of the animals is done by immobilising the animal with a tranquilised dart with an anaesthetic. According to Van der Merwe and Saayman (2004:150), this technique is used to:

- “Examine sick and injured animals”;
- “Remove aggressive animals from a group”;
- “Sort and choose certain animals in a group”;

- “Mark animals for ecological or other studies”;
- “Capture animals that have escaped”;
- “Capture aggressive, difficult and dangerous animals”.

3.6.17. LOADING, TRANSPORTATION AND UNLOADING OF WILD ANIMALS

The most critical part of any game capture is the loading, transportation and unloading of the animals. However, at the same time, the management of these actions is the easiest, regardless of the fact that the animals are feeling the most stressed, as they are trapped and unable to escape (Grange, 2006:241). According to Grange (2006:241), “it is more often the case that there is inadequate control of the animals during this phase of the capture operation. In the boma, before entering the crush, the animals usually escape if there is insufficient control, something they were unable to do during loading and while being transport”. Any improvement in techniques or facilities must be encouraged to reduce the stress of the animals wherever possible. It is often that the capture is overlooked, which results in animals being caught before it is known where they are going and what are the means and availability of transport to get them there. Grange (2006:241) says that “the smooth operation depends on foreseeing potential problems so that provision can be made for them before they occur during capture, as deaths at this stage are mostly unnecessary”. Past experiences are very important as it can anticipate potential problems. During the phase of loading and transportation, it is important to maintain complete control of the animals to prevent stress (Grange, 2006:241).

3.6.17.1. LOADING WILD ANIMALS

It is necessary to have a great deal of experience, when in large mass boma captures, to ensure that the operation goes well. In general, the animals are loaded immediately after capture, except if they have been severely pushed, when it is best to have them rest before loading them. For this purpose, it is good to use the solid crush as the animals are confined and can be rested at the ramp base, thereby placing little further exertion on them when loading (Grange, 2006:242). It is preferable to place the animals in the crush immediately, rather than to rest them overnight in the boma, as they are unaccustomed to the boma and generally respond positively moving through it easily in an attempt to escape (Grange, 2006:242). Once the animals are secured in the crush, by using plastic sheeting from the top, they are moved easily forward from above the crush sides. In case the animals do not want to move up the ramp, it is necessary for a couple of people to enter the crush area from behind the animals and push them up the ramp, using a plastic or a push board (Grange, 2006:242).

3.6.17.2. TRANSPORTING WILD ANIMALS

The responsibility of transporting the captured animals is of the transporter, but if poor transportation happens, it will be blamed on the operator. To avoid this problem, it is best to refuse to load the animals, even if the recipient absolves the operator of all responsibility. Alternative transportation to the recipient should then be made available, even if it is expensive, to provide for the well-being of the animals in the end (Grange, 2006:245).

It is important to ensure that good bedding of rubber mats, soil or sawdust is placed in the crate beforehand to avoid injury or death of the animals. In the case of soil use, it is important to slightly moisturise it to reduce dust, which can alarm the animals and can initiate respiratory problems. By wetting the floor, it also helps to cool down the animals once the moisture evaporates. It is best to use a mat base from vehicle tyre material made specifically for the crates, for the flooring, and on the top of the base it is best to use grass bedding rather than soil (Grange, 2006:245).

According to Granger (2006:245), "although it is important to avoid delays and get the truck moving as soon as possible, it is more important to ensure that the animals have been properly sorted before they are sent on their way". When transporting game, it is important that the driver is sufficiently experienced, to ensure minimum disturbance of the animals during the transit. Any sudden acceleration, braking or swerving must be avoided at all costs (Grange, 2006:246).

3.6.17.3. UNLOADING ANIMALS FROM CRATES

In general, this is the easiest and the least stressful phase, unless the animals need to be physically manhandled out of the truck. If possible, manhandling should be avoided, and the truck should be left at the ramp to allow the animals to leave the truck once they feel comfortable. In case the animals are lying down, they should never be forced onto their feet to improve blood circulation (Grange, 2006:247).

To avoid unnecessary entrance into the boma or any disturbance during the first couple of days, the boma should be well prepared beforehand regarding water and food. This is really important, because the animals need to be given a chance to establish themselves in their new surroundings (Grange, 2006:247).

3.6.18. PREDATOR MANAGEMENT

Predator management is usually based on recent research and experience to predator-prey relationships, social behaviour, population dynamics and reproductive biology of the various predator species concerned. According to Saayman (2009:381), "while the simulation of predator-prey dynamics of an open system in a noble idea, it is most unlikely to be attained in a closed system, which would normally be the case in a

smaller game reserve". Therefore, from time to time, it is best to follow an intervention management process to control predator numbers and sex-age structures. To control the number of predators, the intervention can include culling, hunting, birth control methods and live-scales. To maintain the genetic diversity of the population, the introduction of new individuals should be considered (Saayman, 2009:381).

In larger areas, there is no need for predator management, as the management may disturb the relationship between predators and their prey and between competing large predators. Large predators are sometimes successfully relocated to other areas where a resident population of the same species already exists (Bothma, 1996:466).

According to Bothma (1996:466), "predators on a game reserve are a great asset and they ought to be protected. By creating a suitable buffer supply of some abundant game species even the larger predators, such as the leopard, may exist successfully on most game reserves".

3.6.19. PROBLEM ANIMAL CONTROL

If animals become dangerous or excessively nuisance to people or properties at any time, due to behaviour or tuition, they may be removed from the reserve, captured or destroyed humanly. This also applies to baboons and smaller game that might get through the fence or certain individuals that were kicked out of the group or family and that are causing problems (Saayman, 2009:381).

3.6.20. CULLING

According to Grange (2006:289), "culling is the selective removal of animals hunted or captured, usually in a population reduction exercise". In case it is necessary to cull some animals in an area, the number, sex and age of those animals need to be determined. If there are a few animals involved, it should be considered to hunt them commercially with foreign tourists, as it will provide a financial return. Culling is usually used when a large number of animals need to be removed. When culling fewer than 100 animals, it is usually made by the owner/manager, but when the number is bigger than 100, it should be done by larger commercial organisations that are especially geared for such an operation, especially if the meat is destined to be exported (Grange, 2006:290).

3.7. CONCLUSION

This chapter aimed to discuss the conservation management practices on private game reserves in South Africa.

According to Olatunbosun (2013:32), “conservation of natural resources improves the quality of human life by enabling mankind to live in a clean and healthy environment, while at the same time, within reasonable limits, energy and material needs of the society are met”. Conservation is important as it preserves the beauty of nature, benefits the tourists’ life towards improving emotional and mental health, and serves as a big source of revenue (Olatunbosun, 2013:33).

It is of the utmost importance to manage the game and veld on a game farm/reserve, be it for hunting, wildlife tourism, game breeding or meat processing. The management of the reserve will enable the owners to know the number of game on their farm/reserve, know the current veld conditions, whether the animals’ population is growing, whether they need to introduce new blood to prevent inbreeding, and to be prepared for dry seasons (Saayman & Van der Merwe, 2004:190). When game is moved when purchased, good management of game keeping and game capture will help to counter unnecessary mortality. When harvesting game for meat production purposes, to ensure that the maximum game is harvested with a minimum of loss of meat, it must be very well planned and managed (Saayman & Van der Merwe, 2004:190).

Saayman and Van der Merwe (2004:191) say that “a game farmer must always have a good veld management system in place to prevent erosion and bush thickening which, will lead to a decrease in the carrying capacity of the game reserve”. Especially in the winter seasons, the feeding of game is really important, as game will need mineral supplements. The feeding of mineral supplements is also important during the gestation period, which will help the unborn animals (Saayman & Van der Merwe, 2004:191).

The next chapter will discuss the role of the tourist experience within wildlife tourism, factors that influence a memorable experience, and the relationship between wildlife tourism and conservation management.

CHAPTER 4 - TOURIST EXPERIENCE WITHIN WILDLIFE TOURISM

4.1. INTRODUCTION

There has been a necessity for destinations and tourism activities to create a unique identity due to an increasing competitive global market place. Most destinations and products have spectacular scenery, friendly people, and their own unique culture and heritage. Unfortunately, these factors are not enough to sell a destination or a tourism product. Destinations and product marketers are forced to turn their focus increasingly to the tourist experience (Saayman & Van der Merwe, 2014:1).

It is important to know that, in the tourism industry, an experience is originated from interactions between the tourists and the tourism company or product offerings. It is believed in both the academic community and between industry practitioners that the essence of tourism is the visitor experience. LaSalle and Britton (2003:38) define experience as "a product or service that, when combined with its surrounding experiences and events, goes beyond itself to enhance or bring value to a customer's life". Pikkemaat, Peters, Boksberger and Secco (2009) add to this definition by stating that "these experiences are the result of encountering, undergoing or living through situations that provide sensory, emotional, cognitive, behavioural, relational and functional values" (Saayman & Van der Merwe, 2014:1). According to Jefferies and Lepp (2012), memorable experiences are a "very special, emotionally charged, and potentially life altering in that they may contribute to personal growth or renewal of a person". Kruger and Saayman (2012) define a memorable experience as "an experience that visitors not only remember, but also treasure long after the event is over; therefore it has mental, spiritual and physiological outcomes" (Saayman & Van der Merwe, 2014:2).

As seen previously, national parks and game farms/reserves in South Africa are natural attractions that provide tourists with a unique nature experience, if managed correctly. According to Du Plessis (2010:30), "tourist experiences offered at national parks can be seen as tangible (infrastructure and facilities) or intangible (enhancing the quality of life); with the latter being those experiences that specifically create unforgettable memories for tourists". Curtin (2009) says that "visiting wildlife areas or being on a wildlife holiday is different from other tourism or holiday activities insofar as the main motivation to visit a wildlife destination is to see and gain an understanding of the local fauna and flora, for example within a national park or game farm/reserve. Nowadays, most people live in urban areas and are somewhat isolated from wildlife, but tourist interaction with wildlife and the natural environment is an

integral part of many people's experiences" (Saayman & Van der Merwe, 2014:3). These types of activities are promoted by television programmes such as National Geographic and Discovery that frequently show photographic evidence of interactions between people and wildlife, where, in these situations, people reconnect with nature and the experiences that are encompassed in these encounters (Saayman & Van der Merwe, 2014:3).

The growth in nature-based tourism and tourists travelling to game farms/reserves and national parks is due to a higher level of appreciation of the natural environment and the desire of tourists to engage in rich, quality, nature experiences. Chhetri, Arrowsmith and Jackson (2004:33) explain that "tourist experiences are created by identifying a variety of sensory information found within natural areas". Furthermore, tourists travelling to private game farms/reserves carry a perception based on positive feelings from being on holiday and would seek to match these expectations and emotions with a positive nature experience. According to Cole (2001:13), "the entire tourist experience is an experience where tourists perceive total satisfaction". As a result, a positive tourism experience will lead to a high level of satisfaction for the tourists, which is an important factor because it guarantees return visits and the sustainability of the tourism product. The provision of quality nature experiences is, therefore, a vital component for the reserve management in order to manage game farms/reserves successfully (Du Plessis, 2010:31).

According to Du Plessis (2010:32), "seeing that national parks and game reserves are protected areas that preserve the biodiversity and enhance conservation, the expectations of tourists to game reserves would be to experience and perceive quality, natural environments. Therefore, environmental impacts that occur in game farms/reserves due to tourism have the ability adversely to influence the experience of tourists". Engelbrecht *et al*. (2014) specifically pointed towards the importance of the management on game reserves to create a memorable experience for visitors as this will ensure positive word-of-mouth recommendations, increase revenue, create loyalty, generate competitive advantage, provide a means of personification of the reserve's brand and contribute to the sustainability of the game reserve (Bothma *et al.,* 2016:163).

The aim of this chapter is to look at the tourism experience, the factors that influence a memorable experience, and the impact of good conservation management on tourists' experiences. The following section discusses experience and the importance for game farm/reserve management.

4.2. IMPORTANCE OF THE TOURISM EXPERIENCE

Sheng and Chen (2011) highlight the importance of a tourist experience and state that not only does management need to understand the tourist experience, but they also need to know that both the tangible and intangible attributes of a destination play a role in creating a memorable experience. A memorable experience depends on how satisfied tourists are and, within this context, Cohen (1979) states that "managers need to understand that the level of satisfaction differs from tourist to tourist, which will also have an impact on the experience of each tourist concerning aspects such as landscape, natural beauty, services provided, and quality products, to name but a few". However, it is not enough to know why people visit a game farm/reserve; the owners/managers also need to know the aspects that influence the experience (Engelbrecht *et al.,* 2014:237).

It is vital for game farms/reserves to provide and ensure a memorable and satisfactory tourist experience from a sustainability point of view. In order to offer a memorable tourist experience, it is important to know what aspects will make a contribution. According to Brotherton (2004), these aspects "are referred to as critical success factors (CSFs). CSFs are also known as key-success factors (KSFs) or key result areas (KRAs) and consist of a number of factors, such as general management, wildlife experience, facilities. These factors are the areas within the organization that are essential for management to accomplish its mission". The management of the game farm/reserve needs to identify the areas they consider important to achieve a good tourist experience and manage the activities in order to accomplish the game farm/reserve's goals. All of the game farm/reserve's activities or initiatives that take place within these key areas must guarantee a high performance that will allow the reserve to achieve its goal of creating a memorable tourist experience (Engelbrecht *et al.,* 2014:239).

For the wildlife tourism industry, it is important to understand what makes a memorable wildlife experience in order for operators and destinations to provide a memorable experience. This understanding will assist in underpinning marketing, product development and management strategies. It is also important to have in mind that tourists' future expectations and behaviours are often based on memories of previous experiences. According to Curtin (2010), "it also goes some way towards highlighting the importance of the natural environment (fauna and flora) for a memorable wildlife experience that leads to quality of life/happiness". As 80% of the tourism offering in South Africa is based on nature and wildlife, it is important to continue providing tourists with a memorable experience, which should result in more sustainable wildlife tourism (Saayman & Van der Merwe, 2014:8).

This next section will indicate and discuss the different factors that influence a memorable experience.

4.3. FACTORS THAT INFLUENCE A MEMORABLE EXPERIENCE

As mentioned in the previous section, there are a few factors that can influence a memorable experience. According to Saayman and Van der Merwe (2014), adapted from Moscardo and Saltzer (2004), three main aspects have been identified (Figure 4.1.), namely setting conditions, visitor characteristics and wildlife characteristics.

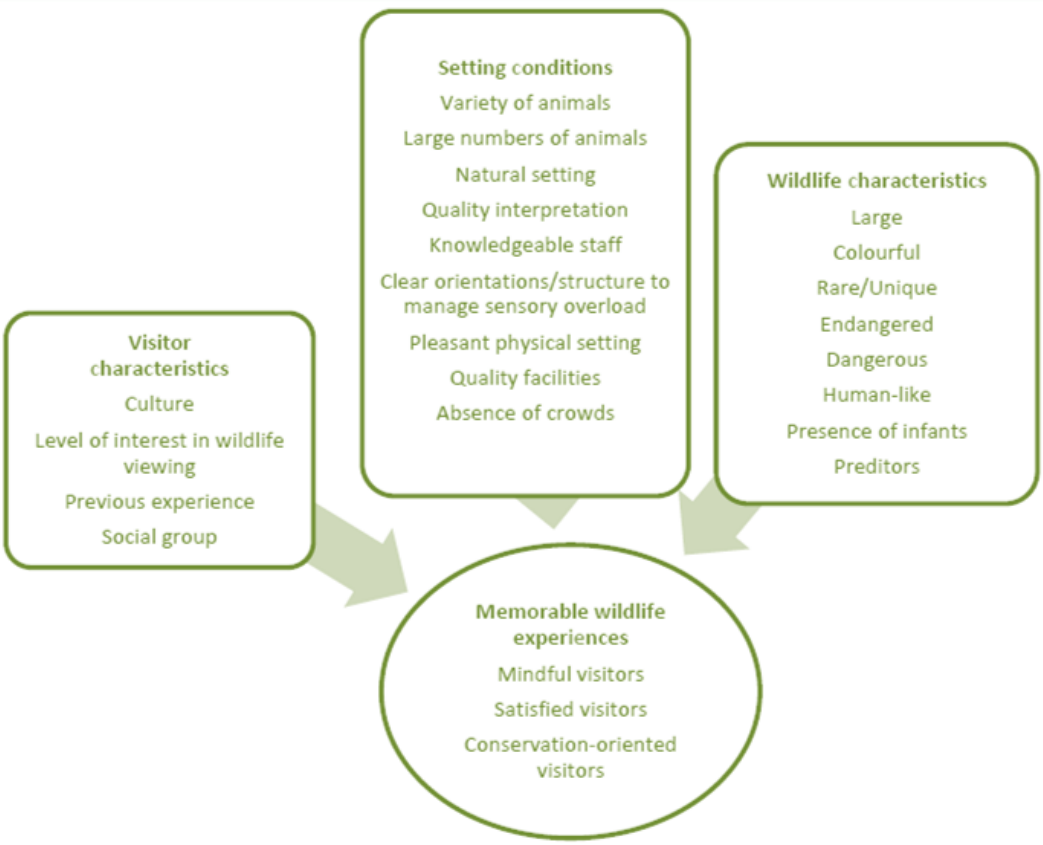

Figure 4.1: Aspects influencing a memorable wildlife experience
Source: adapted from Moscardo & Saltzer (2004:14)

According to Saayman and Van der Merwe (2014:4), "the first aspect, setting conditions, includes elements such as the variety of animals, large numbers of animals, natural setting (e.g. natural environment, then include conservation), quality of interpretation, knowledgeable staff (game ranger or field guide), clear orientations, pleasant physical setting (game hide or open safari vehicle) and absence of crowded places". The next aspect, visitor characteristics, will include elements regarding the visitors, as the name indicates. Elements include previous experiences, the culture of

the tourists and social group. Lastly, wildlife characteristics will include elements such as the presence of small or infant animals, if they are endangered species, whether they are dangerous or rare, their size and their colour (Saayman & Van der Merwe, 2014:4).

When travelling to natural areas, there is always a possibility of encountering affected areas by a variety of destination attributes, such as management, natural and social factors. Within the first aspect, setting conditions, the ecological impacts perceived by tourists are rated as the most important factor influencing tourists' experience. As a result, the environmental impacts of tourism and their effects on the experience of tourists became an important focus (Du Plessis, 2010:33). Listed in Table 4.1 is previous research regarding the environmental impacts affecting tourists' experiences.

Table 4.1: Environmental impacts affecting tourists' experience

Impacts	Effect on tourist experience
Noise pollution	Disrupts the natural sounds of the environment Reduces satisfaction for tourists
Presence of litter	Loss of amenity Reduces the quality of the tourists' experience Reflects a violation of deeply held norms of the Western Society
General environmental condition	Impacts on the perception of artifactualism that negatively affects the experience of tourists
Vegetation loss and perceived number of trees damaged	Tourists experience a loss in the naturalness of the environment
Tourist crowding	Reduces tourist satisfaction due to limited view Causes discomfort for tourists Diminishes opportunities for solitude
Inadequate disposal of human waste	Impacts on tourists' experience negatively Leads to dislike of the area Causes discomfort for tourists

Source: Du Plessis (2010:32)

From the information listed in Table 4.1, one can see that environmental impacts (conservation aspects) such as waste, pollution, veld conditions, overcrowding and litter, to name but a few, really do affect the experience of tourists when visiting

natural settings. According to Du Plessis (2010:183), “these are also influenced by tourists' cultural backgrounds, demographics, travel motives, frequency (number) of visits or prior experience of the destination. In addition, the length of stay, quality of the environment, managerial preferences and influences by the media, friends and family (also known as ''word-of-mouth''), will also play a role in the perceptions of the experiences”. It is noted by Deng and Bender (2007:183) that “the frequency of visitation of tourists is also an important factor in determining the effect that environmental impacts have on tourists' experiences of natural areas” (Du Plessis, 2010:33).

When comparing wildlife viewing to other tourism offerings (e.g. cultural, adventure or beach tourism), the managers cannot guarantee 100% sightings, as they have limited control over the experience they offer. Furthermore, it is important to have in mind that some species that tourists want to see are never guaranteed. According to Saayman and Van der Merwe (2014:14), “the aspects that game reserves do have control over are more tangible, such as the species’ variety, number of a specific species, management of the reserve (conservation management), management of facilities, infrastructure and the products that are provided (activities)”. The implication is that owners/managers of game farms/reserves need to manage those aspects that they do have control over effectively. They must make sure that the conservation management is up to standard, while providing tourists with opportunities to encounter wildlife (for example, well-placed hides, viewpoints and strategically situated roads next to waterholes) and supplying them with information (Saayman & Van der Merwe, 2014:14).

The following section will show how wildlife tourism is related to conservation and how their relationship works regarding other factors.

4.4. THE RELATIONSHIP BETWEEN WILDLIFE TOURISM AND CONSERVATION MANAGEMENT

South Africa’s physical environment is still in a relatively healthy shape, and its conservation track record and biodiversity are well known around the world. As new doors opened for South Africa in the international arena, the country has become a signatory to a variety of international agreements relating to the conservation of the environment and a participant in a host of international conferences relating to this sphere of endeavour. South Africa has a great deal to offer the international community in terms of conservation experience and technical expertise. It is almost impossible to separate a tourism experience from a nature experience. The country is so rich in scenic beauty and wildlife, that these facets remain the strongest motivation for overseas tourists to visit (Myburgh & Saayman, 1999:1).

Although it is not relevant for this study, as mentioned in Chapter 2, it is impossible to talk about the relationship between tourism and conservation and not talk about the local communities. One cannot work without the other. According to Rome (1999), wildlife tourism is one strategy for supporting conservation and providing income for communities in and around game farms/reserves. It can contribute to economic development and conservation of game farms/reserves by generating revenues that can be used to sustainably manage protected areas; providing local employment; and inculcating a sense of community ownership. However, without careful planning and management that balance ecological, social, and economic objectives, it may lead to environmental damage. Furthermore, envisioned as a positive approach towards sustainable development, unplanned or poorly planned and implemented tourism can have serious negative effects, offsetting the benefits it was designed to provide. Even the potential local benefits of wildlife tourism can lead to environmental damage to a protected area (Kiper, 2013:788).

Wildlife tourism is also concerned with making money, but only in an environmentally sustainable manner. Proceeds of the wildlife tourism enterprise go back into the community in the area's land management and conservation. In wildlife tourism, it is sometimes more important to educate the tourist than to make a profit. Therefore, tourism has an important role to play in:

- Regional development;
- Wildlife;
- Raising community awareness of environmental issues (Myburgh & Saayman, 1999:3).

The positive environmental effects may include encouraging the use of marginal agricultural areas for nature conservation, thereby retaining natural vegetation cover, promoting conservation action by demonstrating the importance of natural areas for generating tourist income, and stimulating investment in the infrastructure and effective management of game reserves. The balance between visitors' enjoyment and conservation needs to be found for successful wildlife tourism to be practised (Myburgh & Saayman, 1999:3).

Wildlife tourism promotes environmental protection (impact assessment and environmental planning, construction methods and materials, visual impacts, water supply, air quality, waste minimisation and litter drainage and storm water, wastewater, water conservation, energy minimisation (buildings, energy minimisation) transport, minimal impact on wildlife), provides environmental education by increasing public environmental consciousness, fosters healthy attitudes and behaviours towards nature, and encourages donations to contribute to the protection of local natural resources and air quality (Kiper, 2013:787).

4.5. CONCLUSION

Figure 4.2 summarises the key aspects that should be taken into consideration and that could also be used as a conceptual framework for future research. Memorable experience is impacted by three aspects, as seen in the beginning of this chapter: the first aspect is *setting conditions,* which includes variety of animals, number of animals, natural settings, knowledgeable staff and quality of the facilities; the second aspect is *wildlife characteristics,* which include the presence of infants, predators, and whether the animals are large and colourful; and the last aspect is *visitor characteristics* which includes the culture of the tourists, as well as the interest in viewing wildlife or previous experiences. According to Saayman and Van der Merwe (2014:13), "the tourist experience is impacted on by expectations of tourists and the type of approach. As seen above the experience includes factors like the expectation to see a kill or a predator, or the facilities offered, and products and services" (Saayman & Van der Merwe, 2014:13).

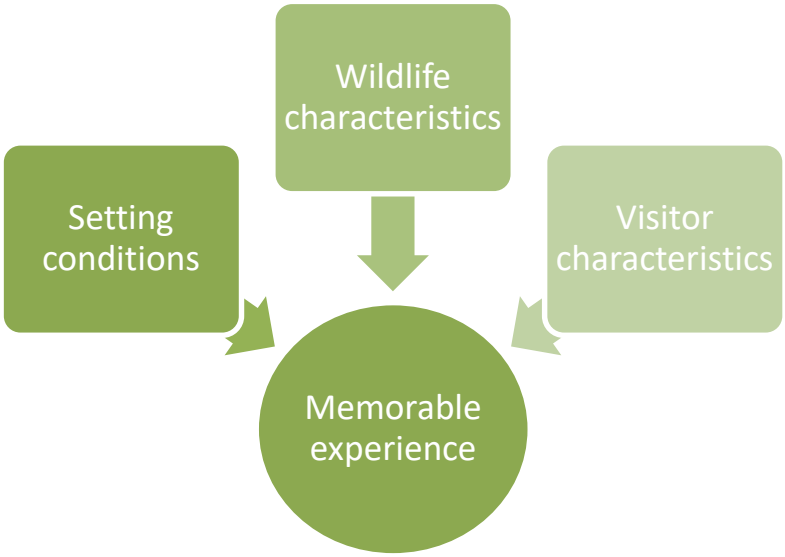

Figure 4.2: Memorable experience
Source: Saayman & Van der Merwe (2014)

Consequently, in order to sustain tourism on game farms/reserves, it is important for the owners/managers to identify the environmental impacts that are caused by tourism and that will affect negatively on the tourism experiences at the game farms/reserves. By identifying these negative environment impacts, it will help to assist the owners/managers in developing appropriate environmental management strategies in order to minimise impacts that would negatively affect the tourism experience. Therefore, management on the game farms/reserves is left with the big task of reaching equilibrium in protecting the biodiversity of the environment and at the same time providing a quality and satisfying nature experiences for tourists. From

a tourist point of view, a positive nature experience will ensure a high level of satisfaction, return visits and improved tourist loyalty towards game reserves (Du Plessis, 2010:30).

The next chapter is the analysis of the results from the questionnaires.

CHAPTER 5 - EMPIRICAL RESULTS

5.1. INTRODUCTION

Pointed out in Chapter 1, the main objective of this study is to assess conservation management practices on private game farms/reserves in South Africa. Second to that, the researcher also would like to determine how conservation practices influence the tourists' experience. In order to achieve this central objective, four secondary objectives were set. Secondary objectives 1 and 2 were covered in Chapters 1, 2, 3 and 4; (secondary) objective 3 empirical results are discussed in this chapter, while the last objective is discussed in Chapter 6, namely conclusions and recommendations.

The aim of secondary objective 3 is to discuss the results of the qualitative interviews. For the purpose of this study, two different sets of interviews were conducted: Firstly, focusing on game farm/reserve owners and managers, and the aim of the interviews was to determine the profile of the different game farms/reserves and the conservation management practices practiced by them; secondly, it focused on tourists at the selected game farms/reserves, exploring their point of view of the different conservation management practices on game farms/reserves and how those practices impact on their tourist experience. Interviews were recorded on a voice recorder with the consent of the interviewee and hand-written notes were also taken during the course of the interviews. This was to ensure that all the relevant information was captured. The outcome of the interviews was compared in detail further in this chapter.

This chapter is divided into three parts:

- Part 1: Results from the interviews with farm/reserve managers/owners
    - Section A: Demographic details of interviewed managers/owners
    - Section B: Conservation management practices
- Part 2: Results from the interviews with tourists
    - Section A: Profile details of interviewed tourists
    - Section B: Tourists' experience and conservation practices
- Part 3: Conclusion

PART 1
5.2. RESERVE MANAGERS/OWNERS

This section includes and examines the following aspects: demographic details and practised conservation management aspects.

5.2.1. SECTION A: DEMOGRAPHIC DETAILS OF THE GAME FARMS/RESERVES

The demographic details included: name of farm/game reserve, respondents' position on the farm, province located, current size of the game farm/reserve, start-up size when established, original practice on the land, main land-use form, number of beds, numbers of hunters and tourists per year, and species present on the game farm/reserve. The following table (Table 5.1) provides a summary of the demographic details captured during the interviews with the owners of the game farms/reserves who participated in the survey. As a matter of privacy, the names of the game farms/reserves are not disclosed.

According to Table 5.1, the majority of the interviewees were managers (50%), followed by owners (37.5%) of the game farm/reserve and a small percentage was shareholders (12.5%). The different game farms/reserves are located in different provinces of South Africa; of the nine provinces in South Africa, seven provinces are represented in this research namely Limpopo (25%), Northern Cape (12.5%), Eastern Cape (12.5%), Free State (12.5%), Western Cape (12.5%), North West (12.5%) and KwaZulu-Natal (12.5%). It is interesting to see that Limpopo, Northern Cape, North West and KwaZulu-Natal Provinces are among the provinces that host the most game farms found in South Africa (Van der Merwe, 2004:106).

As shown in Table 5.1, the majority of the participants (87.5%) have expanded their game farm/reserve size, which, as seen in previous chapters, it is a result of South Africa's wildlife tourism growth, the fact that nature conservation is taking place on private land, that wildlife is more economically viable in some parts of the country than cattle, and that it is better suited to most of the biomes, which all contribute to an increase of land under protection (Mahoney *et al.,* 2011).

All participants have as main land use wildlife tourism (100%), combined with hunting (25%), breeding (25%), meat and game products (25%), and cattle and sheep farming (12.5%) (mixed farming). It is interesting to note that all participants originally bought livestock farms and then converted them into game farms/reserves, and therefore, added land to the conservation of wildlife and nature in South Africa. All the game farms/reserves' original land use was for livestock farming (100%), with some also having crop farming (37.5%). There can be various reasons such as that fact crop and

stock farming are not ideal for all areas of South Africa, such as the growth which was experienced in wildlife tourism and hunting (Mahoney *et al.,* 2011).

Most game farms/reserves (87.5%) have more than 50 beds available. Only three of the game farms/reserves (37.5%) cater for hunters on their land, with the majority of the hunters being international. The rest's main focus is on tourism (international as well as domestic). The research shows that the majority of the game farms/reserves have a large contingency of tourists per year; approximately 152717 tourists in total per year on the eight game farms/reserves that formed part of the research.

As one can see from Table 5.1, the average start-up size of the farms that formed part of the research was 2 605ha, and today the average size of those farms is 13 750ha. Also the start-up total for the farms was 20 841ha and today, the total land use for wildlife is 110 000ha. This is a total of 90 000ha that was added for the use of wildlife. Therefore, it is safe to say these farms had a huge contribution to protection and conservation of fauna and flora.

Table 5.1: Demographic details

Interviewees	Position on the farm	Province	Current size (ha)	Start-up size (ha)	Original practice	Main land use	Number of		
							Beds	Hunters per year	Tourists per year
Interviewee 1	Owner	Northern Cape	48 000	2 000	Livestock farming	Hunting, breeding, wildlife tourism, game products	56	910	400
Interviewee 2	Manager	Eastern Cape	20 000	6 000	Livestock farming	Wildlife tourism	52	-	4 500
Interviewee 3	Owner	Free State	3 500	1 500	Livestock farming	Wildlife tourism, cattle, sheep	14	30	160 (International); many local
Interviewee 4	Owner	Western Cape	8 200	7 200	Livestock farming	Wildlife tourism	110	-	10 000
Interviewee 5	Manager	North-West	600	600	Livestock farming	Wildlife tourism	119	-	23 717
Interviewee 6	Shareholder	KwaZulu-Natal	7 200	900	Livestock and crop farming	Hunting, wildlife tourism, meat production	130	800	7 000 – 8 000
Interviewee 7	Manager	Limpopo	12 500	2 141	Livestock and crop farming	Breeding, wildlife tourism	566	-	73 000
Interviewee 8	Manager	Limpopo	10 000	500	Livestock and crop farming	Wildlife tourism	60	-	33 940

Interviewees were asked to indicate what species they had on their game farm/reserve (Table 5.2). Species found on the sample game farms are: buffalo (1337), caracal (73), duiker (common) (260), giraffe (479), impala (5990), jackal (black-backed) (healthy population), kudu (2036), ostrich (2310), waterbuck (712) and zebra (Burchell's) (1537). According to Van der Merwe's (2004:105) study, the top 10 species that are found on game farms are: impala, kudu, springbok, duiker (common), warthog, wildebeest (blue), waterbuck, eland, ostrich and gemsbok. Compared to Van der Merwe (2004:105), both studies on game farms/reserves found the following species: duiker (common), impala, kudu, ostrich and waterbuck. This shows that these are the more commonly found species on game farms and reserves in South Africa.

Table 5.2: Listed species on game farms/reserves

Species	Interviewee 1	Interviewee 2	Interviewee 3	Interviewee 4	Interviewee 5	Interviewee 6	Interviewee 7	Interviewee 8
Aardwolf	X	X	X	X		X		X
Blesbuck	X		X		X		X	X
Bontebok	X			X				
Buffalo	X	X	X	X	X	X	X	X
Bushbuck	X	X	X	X		X	X	X
Bush pig		X		X		X	X	X
Cheetah		X	X	X	X			X
Caracal	X	X	X	X	X	X	X	X
Duiker: Common	X	X	X	X	X	X	X	X
Duiker: Blue					X			
Duiker: Red					X	X		
Eland: Common	X	X	X	X	X		X	X
Eland: Livingstone	X		X					
Elephant		X		X		X	X	X
Gemsbok	X	X	X	X	X		X	X
Giraffe	X	X	X	X	X	X	X	X
Grey rhebok			X	X				X
Hartebeest	X	X	X	X	X		X	X
Hippopotamus		X	X	X		X	X	X
Hyena: Spotted			X		X	X	X	
Hyena: Brown	X	X	X			X	X	X
Impala	X	X	X	X	X	X	X	X
Jackal: Black-backed	X	X	X	X	X	X	X	X

Jackal: Side-stripped								
Klipspringer	X		X	X	X		X	X
Kudu	X	X	X	X	X	X	X	X
Lechwe	X		X					
Leopard		X	X	X	X	X	X	X
Lion		X	X	X	X		X	X
Mountain reedbuckx	X	X	X			X	X	X
Nyala	X	X	X		X	X	X	X
Oribi					X			
Ostrich	X	X	X	X	X	X	X	X
Reedbuck	X		X			X		X
Roan antelope	X		X		X			X
Rhino: black	X	X				X		
Rhino: white	X	X	X	X	X	X	X	
Sable antelope	X		X	X	X			X
Sitatunga								
Springbok	X	X	X	X	X			
Steenbok	X	X	X		X	X	X	X
Tsessebe	X		X		X		X	X
Warthog	X	X	X		X		X	X
Waterbuck	X	X	X	X	X	X	X	X
Wildebeest: Black	X	X	X					
Wildebeest: Blue	X		X	X	X	X	X	X
Wild dog			X		X			
Zebra: Burchell's	X	X	X	X	X	X	X	X
Zebra: Mountain	X			X				
Other: Suni			X					
Other: Serval			X		X			
Other: Civet			X					
Other: Raisbuck			X					
Other: Bengal Tiger					X			

From Table 5.3, the top 10 species based on the number of species on these game farms/reserves are: impala, warthog, springbok, ostrich, kudu, wildebeest (blue), zebra (Burchell's), buffalo, gemsbok and nyala. For species such as aardwolf, jackal (black-backed), hyena (brown), caracal and bush pig, interviewees found it difficult to give numbers. The total numbers of game on the game farms/reserves that form part of the research are 37107 heads of game.

Table 5.3: Number of game on farms/reserves

Species	Number of game on farms/reserves	Species	Number of game on farms/reserves
Aardwolf	Healthy population	**Leopard**	64
Blesbuck	815	**Lion**	61
Bontebok	256	**Mountain reedbuck**	505
Buffalo	1 337	**Nyala**	1 303
Bushbuck	327	**Oribi**	2
Bush pig	Healthy population	**Ostrich**	2 310
Cheetah	24	**Reedbuck**	206
Caracal	73	**Roan antelope**	420
Duiker: Common	260	**Rhino: black**	15
Duiker: Blue	4	**Rhino: white**	365
Duiker: Red	2	**Sable antelope**	658
Eland: Common	931	**Sitatunga**	0
Eland: Livingstone	60	**Springbok**	5 295
Elephant	178	**Steenbok**	112
Gemsbok	1 329	**Tsessebe**	240
Giraffe	479	**Warthog**	5 600
Grey rhebok	51	**Waterbuck**	712
Hartebeest	684	**Wildebeest: Black**	335
Hippopotamus	134	**Wildebeest: Blue**	1 760
Hyena: Spotted	8	**Wild dog**	12
Hyena: Brown	43	**Zebra: Burchell's**	1 537
Impala	5 990	**Zebra: Mountain**	125
Jackal: Black-backed	Healthy population	**Other: Suni**	4
Jackal: Side-stripped	0	**Other: Serval**	4

Klipspringer	107	**Other: Civet**	1
Kudu	2 036	**Other: Bengal tiger**	2
Lechwe	331		

5.2.2. SECTION B: CONSERVATION MANAGEMENT PRACTICES

Section B of the questionnaire focused on conservation management practices on game farms/reserves, of which the questions asked were based on the work of De Witt (2011), Hermann (2013), Van der Merwe and Saayman (2014) and Saayman (2009).

Firstly, interviewees were asked regarding the existence of a conservation management plan on their game farm/reserve. All interviewees (100%) said they had one. And when asked if they had a conservation manager appointed, all interviewees said "Yes" (100%) as well. Therefore, one can conclude that conservation management is an important aspect for game farm/reserve managers and owners.

Here-after, interviewees were asked to indicate which conservation management aspects were practised on their game farm/reserve and the importance of those practices (Table 5.4). The importance of each of the items was rated on a five-point Likert scale ranging from 1 = "Not at all important" to 5 = "Extremely important".

The following conservation management aspects were rated as very important to extremely important by the interviewees. In the case where interviewees made extra comments, it was added.

- Monitor vegetation (100%) – "manage bush encroachment" (Interviewee 7);
- Monitor wildlife (100%) – "monitor rhinos" (Interviewee 6);
- Game counting (100%);
- Road management (100%) – "Do it year by year and then control it, and use of small equipment to avoid destruction" (Interviewee 3);
- Stocking rate and grazing capacity of large herbivores (100%);
- Removal of invasive alien plant species (87.5%) – "teamed up with the government to bring people and remove the species" (Interviewee 3); "specific team that does the removal" (Interviewee 6); "removal of lantanas and spiny apple" (Interviewee 7); "control species like lantana. Also have a programme to control indigenous invasive species by cutting it" (Interviewee 8);
- Provide water source for game (87.5%) – "by water pump" (Interviewee 6); "dams full, boreholes in place" (Interviewee 7);

- Waste management (87.5%) – “recycling” (Interviewee 5); “creating systems to ensure waste removed effectively” (Interviewee 7);
- Responsible production practices (genetics) (87.5%) – “constant change of old bulls and females to bring new ones” (Interviewee 3);
- Anti-poaching units (75%);
- Soil erosion control measures (75%) – “manage roads to prevent and create road water channels” (Interviewee 7); “structure that is put in place to prevent further soil losses in areas where there is zero grass covering and also, in areas where there is no extensive current damage, it’s reaped and seeded in order to stabilise the soil” (Interviewee 8).
- Veld fire management (75%) – “fire breaks” (Interviewee 3); “control encroachment and food standards for the animals” (Interviewee 7)
- Removal of infrastructures (75%) – “mostly done in the past” (Interviewee 3, 6);
- Waste water management (75%) – “water goes into drains” (Interviewee 1);
- Transportation and relocation of game (75%) – “all done in standards of capture and release” (Interviewee 7); “use of good vehicles” (Interviewee 3);
- Bomas (62.5%);
- Bush-encroachment control (62.5%) – “controlled by the animals” (Interviewee 3);
- Vegetation clearing (50%) – “by game drives and by the carrying capacity (animals)” (Interviewee 3); “clearing sekel wood to provide shop firewood” (Interviewee 7);
- Other: Dehorning rhinos (14.28%);
- Other: Rehabilitation of riverbank (14.28%) – “by planting reeds” (Interviewee 6).

Table 5.4: Conservation management aspects according to scale of importance

Conservation management aspects	Importance (%)				
	1 “Not at all important”	2 “Less important”	3 “Neither important nor less important”	4 “Very important”	5 “Extremely important”
Anti-poaching units	12.5		12.5		**75**
Removal of invasive alien plant species		12.5		**25**	**62.5**
Soil erosion control measures		12.5	12.5	**25**	**50**
Monitor vegetation				**25**	**75**
Monitor wildlife				**37.5**	**62.5**
Provide water source for	12.5				**87.5**

game					
Provide supplementary feed for game	37.5		**37.5**		25
Vegetation clearing	12.5	12.5	25	**37.5**	**12.5**
Veld fire management	25			**12.5**	**62.5**
Removal of infrastructures		12.5	12.5	**12.5**	**62.5**
Game counting				**12.5**	**87.5**
Waste management			12.5	**12.5**	**75**
Culling	25		**37.5**	12.5	25
Waste water management	12.5		12.5		**75**
Bomas		12.5	25	**12.5**	**50**
Road management				**12.5**	**87.5**
Bush-encroachment control	12.5	12.5	12.5	**37.5**	**25**
Stocking rate and grazing capacity of large herbivores				**12.5**	**87.5**
Predator control		25	**37.5**		37.5
Transportation and relocation of game		12.5	12.5	**12.5**	**62.5**
Responsible production practices (genetics)	12.5			**12.5**	**75**
Other: Dehorning rhinos					**12.5**
Other: Rehabilitation of riverbank					**12.5**

The following conservation management aspects were seen as neither important nor less important. The following were some actions used for the different practices by the interviewees on their game farms/reserves:

- Culling (37.5%) – “use of silencers to avoid disturbance with the animals” (Interviewee 3); “use of the meat for the butchery” (Interviewee 6); “only when the animal is mortally injured” (Interviewee 8);
- Predator control (37.5%) – “regarding the increase of black-backed jackal’s population” (Interviewees 1, 5); “control lion population” (Interviewee 8);
- Provide supplementary feed for game (37.5%) – “supplement of minerals on the ground” (Interviewee 3).

From the just-mentioned, one can see that the interviewees classified most of the conservation management aspects as very important or extremely important. This

indicates that the majority of the interviewees recognise the need to have good conservation management practices as well as knowing which are of importance on their land in order to maintain a healthy environment. It is also comforting that all conservation practices identified in the literature are also practiced on the land. This indicates that interviewees are well aware of what conservation is about.

When asking the interviewees whether they felt that good conservation management practices influence tourists' experience, all said "Yes" (100%). They were further asked to motivate their answer, and the motivations were as follows:

- Interviewee 1: "People come and you need to be sensitive. For example, if you go to a zoo, you have a different expectation you expect animals to be in cages so you will have a great experience as well because your mind was set for that. When people go to Yellowstone National Park in America, tourists will most likely see an elk or a wolf, but they know what to expect to see. When people come to Africa, Africa it's a romantic destination where people do believe human interference needs to be the minimum. And if we are sensitive to that then we will hit that on the spot. If you see it from the outside, some places are so commercialised, by feeding a leopard in a tree and you will be in a line of 20 other cars to go and photograph the same leopard, and that same leopard will be fed tomorrow again but it's in the wild. What I'm saying is, nothing's wrong with what they do but they've created the perception that is totally wild and there is little human interference, the way it turned out its irrelevant. And that is where we, game ranchers (game farmers), need to be very sensitive on our approach. People need to understand that there is private ownership, therefore there are fences and because there are fences, we need human interference in managing the populations. But when we take someone on a game drive, we don't need to make the road next to the fence, we don't need to pass by the water points that are still artificial, and we go to natural points. So yes, it's very important".
- Interviewee 2: "It supports the long-term sustainability of the product that the tourists come to see. If you don't have conservation management practices, you won't have a sustainable reserve. So it should be part of your long term objectives".
- Interviewee 3: "If it's not well done, the first impression from anyone from the outside or tourist it will look like there's something wrong. If you look at my place I do as little as possible in nature. I've got one paved trail to my chalet. To do much human interference is not a good thing. I think people need the African experience. If you want the standard of your stuff, a lot of people coming here, their houses and their facilities are much better. So why do you

want to compete with houses? You want to sleep well, have a hot shower (if possible) and have the experience of Africa, the wildlife and the vegetation. Any place, when you enter it and people talk about the rating system (4 or 5 stars), I think they rate too much on accommodation, they must rate what is on the land. I think that is the experience that the tourists need to see when they come from abroad".

- Interviewee 4: "Good conservation practices provide an authentic safari experience, as people want authentic safaris and not fabricated safaris".
- Interviewee 5: "In modern days, green tourism is very important. A lot of guests came here and ask us what we are doing, why do you do this and that while on game drives. They ask a lot of questions; they are really involved. They are very concerned with the health of the environment and the animals. So it's very important for us to portrait that. And tourists can see that here".
- Interviewee 6: "Conservation is the basis for the vegetation and the wildlife; it's where it all starts".
- Interviewee 7: "This does affect tourist experience because conservation management determines the condition of the bushveld thus determining the condition of game and abundance thereof".
- Interviewee 8: "It influences game viewing, which is our biggest income and without proper conservation management we don't have that. So we need to balance the carrying capacity with the stocking rate and make sure your biodiversity is good enough to attract those tourists. If you are going have only a few species, for instance, no carnivores, no elephants, those kinds of things, the tourists simply won't come. The reason why we are a successful game reserve is because of the game viewing".

As seen from the interviewees' responses, they believe that conservation management practices are important to the tourists' experience as it provides a better experience because there are healthy wildlife populations and healthy environments.

When asked if the interviewees increase awareness and positive environmental ethics, all said "Yes" (100%). When asked how, they answered:

- Interviewee 1: "By making sure, first of all your staff is educated and to have rules, where you have respect for the wildlife".
- Interviewee 2: "From a tourist perspective, we have to make sure our ethics are 100%. So all the staff is involved on those types of things".
- Interviewee 3: "By talking to people and showing them what it's done on the game reserve. You see the big thing here, I've been talking to all my people whenever and the conservation word is been overused. People using that word to capitalise it on specifics, that's totally wrong. Conservation, you step here

and see the road, you see the breeding facilities and you see the animals, the balance. Looking at the habitat you can see that is not overgrazed. People feeding their wildlife in their area are game farmers. Animals need to survive by themselves because how are you going to know which one the strongest genetics is if you feed them. You got to show people and understand".

- Interviewee 4: "By having informative information in the rooms; through awareness on wildlife drives and by exposing tourists to independent conservation programmes".
- Interviewee 5: "The game ranger does that. We get incredible feedback regarding his knowledge and experience from guests".
- Interviewee 6: "By educating the tourists while on drive".
- Interviewee 7: "Road signs are placed stating rules such as littering habits, speeding, walking in dangerous areas. Also the rangers state positive and vital awareness with all guests".
- Interviewee 8: "We just had a group of journalists here where we had a presentation about our conservation projects, which the leopard project is one; we have various other conservation projects. And we raise awareness not only with the press but with the tourists as well, while on drive".

From the information above, one can see that the majority believe that it is important to educate the staff and rangers, so that they can increase awareness and positive ethics to the tourists, providing a better experience.

The following aspect that was asked to the interviewees is whether they implement any of the following environmentally friendly practices on their game farm/reserve, and what its importance was (Table 5.7). The importance of each of the items was rated on a five-point Likert scale ranging from 1 = "Not at all important" to 5 = "Extremely important".

According to Table 5.7, the following environmental practices were rated as very important to extremely important by the participants. The following were some actions used for the different practices by the interviewees on their game farms/reserves:

- Reduction of litter (100%) – "by recycling and composting (Interviewee 6); a team walks around and searches for litter" (Interviewee 7);
- Make measures to eradicate invasive alien species (100%) – "specific team does it" (Interviewee 6); "all invasion vegetation closely monitored" (Interviewee 7);
- Protect threatened species (100%) – "protection of black rhino" (Interviewee 1, 6); "all threatened species are monitored closely" (Interviewee 7);

- Reduction of negative impacts (e.g. noise, light and erosion) (87.5%) – “stated on house rules, no loud noises after 10pm” (Interviewee 5); “all lighting and noise is met to standards of approval” (Interviewee 7); “use of bulbs that use less power” (Interviewee 8);
- Solid waste management plan (87.5%) – “all waste is disposed of in the correct material manner” (Interviewee 7); “removal of all waste from the reserve on a weekly basis and transport it to a private site, having a limit amount of waste on the game farms/reserve” (Interviewee 8);
- Increase environmental awareness and promote positive environmental ethics among tourists (87.5%) – “informing the tourists at check-in that if it’s not necessary to change the towels and linen, to let the housekeeper knows – saves water” (Interviewee 5); “knowledge of this subject is crucial” (Interviewee 7); “with every game drive that goes out, there is an element of awareness and environmental education; once a month, there is a meeting where we go through guiding ethics and environmental awareness and importance of places like this” (Interviewee 8);
- Provide tourists with information regarding environmentally friendly practices (e.g. water-saving and recycling techniques) (75%);
- Make use of water-saving techniques (e.g. low-flow or dual-flush toilets and low flow showerheads) (75%) – “always creating ways to save water” (Interviewee 7);
- Use of renewable energy sources when possible (62.5%) – “solar panels” (Interviewees 1 and 3);
- Reduction of greenhouse emissions and other contributors to climate change (50%) – “By going more green, using solar panels” (Interviewee 1); “all greenhouse emissions to be managed closely” (Interviewee 7);
- Other: Community projects (25%) – “use conservation while supporting the communities; when the waste is transported to a private site, the community sorts the plastics and bottles and that goes to recycling, creating a job programme” (Interviewee 1);
- Other: School awareness (12.5%) – “by bringing schools to the game reserve and teaching them about conservation” (Interviewee 5);
- Other: Use of organic materials (12.5%) – “all the insides of the animals’ stomach are dried through a process and then used as fertiliser” (Interviewee 3).

Table 5.5: Environmentally friendly practices and its importance

Environmental practices	Importance (%)				
	1 "Not at all important"	2 "Less important"	3 "Neither important nor less important"	4 "Very important"	5 "Extremely important"
Reduction of litter				**37.5**	**62.5**
Reduction of negative impacts (e.g. noise, light and erosion)		12.5		**25**	**62.5**
Make use of environmentally friendly consumer products (e.g. biodegradable soap, recycled paper and pesticides)		12.5	**37.5**	25	25
Solid waste management plan	12.5			**12.5**	**75**
Reduction of greenhouse emissions and other contributors to climate change	25		25	**12.5**	**37.5**
Use of renewable energy sources when possible	12.5		25	**25**	**37.5**
Increase environmental awareness and promote positive environmental ethics among tourists		12.5			**87.5**
Provide tourists with information regarding environmentally friendly practices (e.g. water-saving and recycling techniques)	25			**25**	**50**
Make use of water-saving techniques (e.g. low-flow or dual-flush toilets and low flow showerheads)	12.5		12.5	**12.5**	**62.5**
Make measures to eradicate invasive alien species				**37.5**	**62.5**
Protect threatened species					**100**
Other: Community projects					**25**
Other: School awareness					**12.5**
Other: Use of organic materials					**12.5**

The following environmental practice was seen as neither important nor less important. The following were added some actions used for the different practices by the interviewees on their game farms/reserves:

- Make use of environmentally friendly consumer products (e.g. biodegradable soap, recycled paper and pesticides) (50%) – “recycling” (Interviewee 6); “use of brown paper bags instead of plastic bags” (Interviewee 8).

PART 2
5.3. TOURISTS’ RESULTS

Twelve tourists were interviewed from the eight game farms/reserves. The individuals were chosen because it depended on who was at the game farms/reserves at the time the interviews took place.

This section includes and examines the following aspects: profile details of the tourists and experience and conservation details.

5.3.1. SECTION A: DEMOGRAPHICS OF INTERVIEWED TOURISTS

The aspects determining the profile of the interviewees (tourist) who formed part of the questionnaire included: gender, age, country of residence, reason for visit, length of stay and past experience on game farms/reserves.

According to Table 5.6, the majority of the interviewees are male (66.4%), with a small percentage of the interviewees females (33.2%). The average age of the interviewees was 60 years and older, with most of the resident from the United States of America (58.1%) followed by South Africa (24.9%), Germany (8.3%) and Mexico (8.3%).

It was clear from Table 5.6. that the main reason for visiting the game farm/reserve was to see animals (91.3%), to take photos of plants (85.1%), the brand of the game farm/reserve (83%), the climate (83%), to explore wildlife (83%), to explore new destinations (83%), relaxation (83%), followed by to take photos of animals (74.7%) and family time (74.7%). The research further revealed that the majority of the interviewees stayed for one to five days (49.8%) and five to 10 days (33.2%) respectively. That largest portion of the interviewees (66.4%) had a previous experience on game farms/reserves.

Table 5.6: Profile of participants (tourists)

Category	Profile (%)	
Gender	Male	66.4
	Female	33.2
Age	20-30	24.9
	30-40	8.3
	40-50	0
	50-60	0
	+60	66.4
Country of residence	South Africa	24.9
	United States of America	58.1
	Germany	8.3
	Mexico	8.3
Reason to visit	To see endangered species	66.4
	To see animals	91.3
	To see plants	58.1
	For educational reasons	49.8
	To take photos of animals	74.7
	To take photos of plants	85.1
	To attend conferences	16.3
	To attend events	16.3
	Hiking	8.3
	Accommodation	58.1
	Brand of the game farm/reserve	83
	Climate of location	83
	Grew up with the game farm/reserve	0
	Park has been visited since childhood	0
	To experience wildlife	83
	Family time	74.7
	Different species	58.1
	To explore new destinations	83
	Socialising with friends	24.9
	Routine vacation	16.3
	Relaxation	83
	Wellness	41.5
	Hunting	24.9
	Other: Professional	16.3
	Other: Always wanted to visit	8.3
Length of stay	1-5 days	49.8
	6-10 days	16.3
	10-15 days	33.2
Past experience on game farms/reserves	Yes	66.4
	No	33.2

The interviewees who had past experience on game farms/reserves were asked the approximate number of times they had visited a game farm or game reserve before. Table 5.7 shows the results. As seen on Table 5.7, the majority of the interviewees

visited a game farm/reserve more than 15 times (33.2%) and six to 10 times (24.9%), while a smaller percentage (8.3%) visited only one to five times. The majority of the tourists interviewed on the game farms/reserves are regular visitors to such types of nature products.

Table 5.7: Number of past experiences of the interviewees

Number of past experience (times)	%
1-5	8.3
6-10	24.9
11-15	0
+15	33.2

5.3.2. SECTION B: TOURIST EXPERIENCE AND CONSERVATION PRACTICES

This section includes aspects that contribute to a memorable experience and its importance, important conservation management aspects to be practised on a game farm/reserve and its importance, and environmentally friendly practices.

Interviewees were asked which aspects contributed to a memorable experience on a game farm/reserve and its importance (Table 5.8). The importance of each of the items was rated on a five-point Likert scale ranging from 1 = “Not at all important” to 5 = “Extremely important”.

According to Table 5.8, the following aspects contribute to a memorable experience on game farms/reserves and were rated as very important to extremely important by the interviewees:

- Good conservation practices (100%);
- Natural settings (100%);
- Variety of animals (100%);
- Rare and unique species (91.3%);
- Large number of wildlife (91%);
- Uniqueness of the encounter (91%);
- Close proximity (83%);
- Authenticity of encounter (82.7%);
- Presence of predators (82.7%);
- Quality facilities (74.7%);
- Duration of the encounter (74.7%);
- Charisma and appeal of the species (74.7%);
- Specie’s status (e.g. endangered species) (66.4%);

- Surprise and novelty (66.4%);
- Intensity of the encounter (66.4%);
- Presence of Big 5 (57.8%);
- Unexpected events (e.g. kills) (49.8%);
- Weather (33.2%);
- Knowledge of guides (24.9%);
- Local people (16.3%);
- Previous research (8.3%).

The top six aspects that were rated as very important to extremely important were good conservation practices (100%), natural settings (100%), variety of animals (100%), rare and unique species (91.3%), large number of wildlife (91%) and uniqueness of the encounter (91%). Interesting to note is that seeing the Big Five (although rated above 55%) was not seen as that important for having a memorable experience.

Table 5.8: Aspects that contribute to a memorable experience

Contributors to a memorable wildlife experience	Importance (%)				
	1 "Not at all important"	2 "Less important"	3 "Neither important nor less important"	4 "Very important"	5 "Extremely important"
Variety of animals				**24.9**	**74.7**
Large number of wildlife	8.3			**16.3**	**74.7**
Rare and unique species			8.3	**33.2**	**58.1**
Specie's status (e.g. endangered species)	16.3	8.3	8.3	**41.5**	**24.9**
Presence of Big 5	8.3		33.2	**16.3**	**41.5**
Presence of predators	8.3		8.3	**16.3**	**66.4**
Charisma and appeal of the species		8.3	16.3	**16.3**	**58.1**
Natural settings				**8.3**	**91.3**
Quality facilities		8.3	16.3		**74.7**
Authenticity of encounter			16.3	**8.3**	**74.7**
Surprise and novelty	8.3		24.9	**33.2**	**33.2**
Unexpected events (e.g. kills)	8.3	8.3	33.2		**49.8**
Intensity of the encounter	16.3	8.3	8.3	**24.9**	**41.5**
Uniqueness of the encounter			8.3	**16.3**	**74.7**
Duration of the encounter		8.3	16.3	**8.3**	**66.4**
Good conservation practices				**33.2**	**66.4**
Close proximity			16.3	**8.3**	**74.7**
Other: Previous research					**8.3**
Other: Knowledge of guides					**24.9**
Other: Local people					**16.3**
Other: Weather					**33.2**

As stated in Chapter 4, there are three aspects that impact on a memorable wildlife experience, namely setting conditions (variety of animals, large numbers of animals, natural setting, knowledgeable staff), visitor characteristics (include elements such as the culture of the tourist, previous experiences) and wildlife characteristics (such as the size of the animals, rareness, whether they are dangerous) (Saayman & Van der Merwe, 2014). According to this research, one can see that those are also the aspects the interviewees indicated as the most important in this research.

The research further determined whether the interviewees think it is important to have a conservation management plan on the game farm/reserve. All interviewees said "Yes" (100%). When asked why they thought it was important, the interviewees responded as follows:

- Interviewee 1: "To control, so you can know what you have and what needs to be done".
- Interviewee 2: "To save species. You can't have a successful game farm without a conservation management plan".
- Interviewee 3: "It's important to have a management plan to know the actual situation, to have success in the long period. If we have a plan, it will help to increase the population of your animals. You need to make a plan for the habitat, to take care of the predators and how the managers collect the animals for the hunters. It's important to have water supplies, and some people think it's enough to simply put the water point. You need to have a management plan for the habitat. All the little pieces in one operation need a management plan".
- Interviewee 4: "For future generations to be able to experience the wildlife".
- Interviewee 5: "For future generations, as I would like my great grandchildren to see the animals and not learn it from a picture".
- Interviewees 6 and 7: "Without a plan, the species would disappear for future generations".
- Interviewee 8: "If you look after the animals and your farm, and veld and everything then everything comes back to you. You look after something that can't show appreciation and you still look after it, then you know you are doing a good job. If you look after the veld, the veld is going to look after you, working like a cycle".
- Interviewee 9: "Because it's important to know what the animal needs, how much feeding they need, what type of environment, and not to be kept in cages. You need to have someone in conservation that knows what's important and what is not".
- Interviewee 10: "For the future existence of the species".

- Interviewee 11: “To maintain it. What would happen if you don’t do that?”
- Interviewee 12: “To protect the animals, for future generations”.

As one can see, the bulk of the interviewees believe it is important to have a conservation management plan because it shows the actual situation of the wildlife and the environment and its needs, so it can be managed correctly to ensure the survival of the species.

Interviewees were then asked what conservation management aspects they thought were important to be practised on a game farm/reserve and how important they are (Table 5.9). The importance of each of the items was rated on a five-point Likert scale ranging from 1 = “Not at all important” to 5 = “Extremely important”.

According to Table 5.9, the following conservation management aspects were rated as very important to extremely important by the interviewees:

- Anti-poaching units (100%);
- Removal of invasive alien plant species (100%);
- Monitor wildlife (100%);
- Provide water sources for game (100%);
- Game counting (100%);
- Waste management (100%);
- Transportation and relocation of game (100%);
- Responsible production practices (genetics) (100%);
- Disease-control (91.3%);
- Stocking rate and grazing capacity of large herbivores (91.3%);
- Monitor vegetation (91%);
- Waste water management (91%);
- Vegetation clearing (83%);
- Veld fire management (83%);
- Bush-encroachment control (83%);
- Predator control (83%);
- Soil erosion control measures (82.7%);
- Provide supplementary feed for game (74.7%);
- Culling (74.7%);
- Road management (66.4%).

Table 5.9: Conservation management aspects and importance according to the interviewees

Conservation management aspects	Importance (%)				
	1 "Not at all important"	2 "Less important"	3 "Neither important nor less important"	4 "Very important"	5 "Extremely important"
Anti-poaching units				**8.3**	**91.3**
Removal of invasive alien plant species				**16.3**	**83**
Soil erosion control measures			16.3	**16.3**	**66.4**
Monitor vegetation			8.3	**16.3**	**74.7**
Monitor wildlife				**16.3**	**83**
Provide water source for game					**100**
Provide supplementary feed for game	16.3		8.3	**8.3**	**66.4**
Vegetation clearing	8.3		8.3	**74.7**	**8.3**
Veld fire management	16.3			**24.9**	**58.1**
Removal of infrastructures			**58.1**	16.3	24.9
Game counting				**8.3**	**91.3**
Disease-control			8.3		**91.3**
Waste management				**8.3**	**91.3**
Culling		16.3	8.3	**41.5**	**33.2**
Waste water management			8.3	**16.3**	**74.7**
Road management			33.2	**24.9**	**41.5**
Bush-encroachment control	8.3	8.3		**58.1**	**24.9**
Stocking rate and grazing capacity of large herbivores		8.3		**33.2**	**58.1**
Predator control			16.3	**33.2**	**49.8**
Transportation and relocation of game				**33.2**	**66.4**
Responsible production practices (genetics)				**24.9**	**74.7**

The following conservation management aspect was seen as neither important nor less important:

- Removal of infrastructures (58.1%).

Afterwards, the interviewees were asked whether they thought good conservation management practices would influence their experience. All participants said “Yes” (100%). When asked why, they answered as follows:

- Interviewee 1: “Because as we saw here, there is water points for the animals, there are feed for the animals when necessary, they count the animals, they have a list of the animals of the area, and they need to know what you can shoot. And the anti-poaching, like here, they have people that count the rhinos, so it’s important to see that the problems are being taking care of”.
- Interviewee 2: “It’s important to see how the species are doing so you can protect them”.
- Interviewee 3: “Because with the knowledge of these conservation practices, it will be easier to manage and protect the environment and wildlife, and with that it will influence the quality of the experience”.
- Interviewee 4: “Every topic mentioned before (conservation management practices), I experienced it through the staff and now I have a different perspective on life because of that”.
- Interviewee 5: “It keeps the diversity going, both plants and animals, as well as to keep the balance”.
- Interviewee 6: “The knowledge of the staff passed out of the species and the environment”.
- Interviewee 7: “This reserve is an example of how well a conserved area is maintained”.
- Interviewee 8: “It speaks to where I came from as well, being raised on a farm that is how I was taught, so I was raised to handle animals, to handle your veld with care. That is why it was nice for me to see that there is a plan that they have, to look after the things, not only wanting to be spectacular or trying to be in the spotlight, you can still see that they have a plan and I relate to that. So the experience was as good”.
- Interviewee 9: “With good conservation, the animals are in their natural settings and I would go there, otherwise I wouldn’t go there. So it’s definitely essential for me, going to place or feeling that a good conservation is being done”.
- Interviewee 10: “As no one wants to see a poorly managed game farm”.
- Interviewees 11 and 12: “If it’s not done to the point where it should be, it would make a great difference on the experience. You should see it on its natural settings as much as possible, but on the other hand, there is a need to have some kind of control of what we are doing”.

From the information above, it is clear to see that the interviewees think good conservation management practices influence their experience as it helps keep the diversity and the balance in place, improving their tourism experience.

Lastly, the interviewees were asked to indicate which environmentally friendly practices they thought were important to be practised on game farms/reserves and its importance. The importance of each of the items was rated on a five-point Likert scale ranging from 1 = “Not at all important” to 5 = “Extremely important”.

According to Table 5.10, the following environmental practices were rated as “very important” to “extremely important” by the interviewees:

- Reduction of litter (100%);
- Solid waste management plan (100%);
- Use of renewable energy sources when possible (100%);
- Make use of environmentally friendly consumer products (e.g. biodegradable soap, recycled paper and pesticides) (91.3%);
- Protect threatened species (91.3%);
- Make use of water-saving techniques (e.g. low-flow or dual-flush toilets, low-flow showerheads, frequency of towel change) (91%);
- Increase environmental awareness and promote positive environmental ethics among tourists (90.7%);
- Make measures to eradicate invasive alien species (83%);
- Reduction of damage to natural vegetation due to trampling and off-roading (83%);
- Reduction of negative impacts (e.g. noise, light and erosion) (82.7%);
- Inform tourists regarding environmentally friendly practices (e.g. water-saving and recycling techniques) (82.7%);
- Provide tourists with information about conservation and/or community projects (74.4%);
- Reduction of greenhouse emissions and other contributors to climate change (66.4%).

Table 5.10: Environment friendly practices: Tourists' perspective

Environmental practices	Importance (%)				
	1 "Not at all important"	2 "Less important"	3 "Neither important nor less important"	4 "Very important"	5 "Extremely important"
Reduction of litter				**24.9**	**74.7**
Reduction of negative impacts (e.g. noise, light and erosion)		8.3	8.3	**16.3**	**66.4**
Make use of environmentally friendly consumer products (e.g. biodegradable soap, recycled paper and pesticides)	8.3			**33.2**	**58.1**
Solid waste management plan				**24.9**	**74.7**
Reduction of greenhouse emissions and other contributors to climate change			33.2	**24.9**	**41.5**
Use of renewable energy sources when possible				**16.3**	**83**
Increase environmental awareness and promote positive environmental ethics among tourists	8.3			**16.3**	**74.7**
Provide tourists with information regarding environmentally friendly practices (e.g. water-saving and recycling techniques)		8.3	16.3	**16.3**	**58.1**
Inform tourists regarding environmentally friendly practices (e.g. water-saving and recycling techniques)	8.3		8.3	**16.3**	**66.4**
Make use of water-saving techniques (e.g. low-flow or dual-flush toilets and low flow showerheads)			8.3	**16.3**	**74.7**
Make measures to eradicate invasive alien species		8.3	8.3	**8.3**	**74.7**
Reduction of damage to natural vegetation due to trampling and off-roading			16.3	**33.2**	**49.8**
Protect threatened species			8.3	**8.3**	**83**

5.4. CONCLUSION

As indicated before, the main objective of this study is to determine conservation management practices on private game farms/reserves and to understand how those practices could influence the tourists' experience.

In conclusion, for the first set of interviews, the research showed that the majority of the interviewees were managers (50%) of the game farms/reserves. Most game farms/reserves were located in Limpopo and were expanded in order to convert it to game farming, to fit mostly wildlife tourism.

The top six conservation management aspects rated as very important to extremely important are monitor vegetation, monitor wildlife, game counting, road management, stocking rate and grazing capacity of large herbivores and removal of invasive alien plant species. The conservation management aspects rated as neither important nor less important were culling, predator control and providing supplementary feed for game.

Conservation management practices are important to the tourists' experience because they provide a better experience because the environment and the wildlife are healthy and in balance. All interviewees increase awareness and positive environmental ethics on their land by educating the staff and rangers, so that they can increase awareness and positive ethics among the tourists.

The top six environmental practices implemented, rated as very important to extremely important, are reduction of litter, taking measures to eradicate invasive alien species, protecting threatened species, reduction of negative impacts (e.g. noise, light and erosion), solid waste management plan, increasing environmental awareness and promoting positive environmental ethics among tourists. The conservation management aspect rated as neither important nor less important is making use of environmentally friendly consumer products (e.g. biodegradable soap, recycled paper and pesticides).

In conclusion, for the second questionnaire, regarding the profile of the interviewees, the research showed that the majority are male, the average age is 60 and older and they are from the United States of America. The most common reason for visiting was to see animals and the brand of the game farm/reserve. Furthermore, the majority of the interviewees stayed for one to five days and had previous experience on game farms/reserves.

The research found that the top six aspects that contribute to a memorable experience, rated as very important to extremely important, are good conservation practices, natural settings, variety of animals, rare and unique species, large numbers of wildlife and uniqueness of the encounter. It is also important to have a conservation management plan on a game farm/reserve, because it shows the actual situation of the environment and wildlife and what it needs so it can be managed in order to maintain its survival and balance.

The top six conservation management aspects rated as very important to extremely important are anti-poaching units, removal of invasive alien plant species, monitoring

wildlife, providing water sources for game, game counting and waste management. The conservation management aspect rated as neither important nor less was the removal of infrastructures.

Good conservation management practices influence the tourists' experience because as it helps keep the diversity and the balance of the environment, improving the experience.

Lastly, the top six environmental practices rated as very important to extremely important are reduction of litter; solid waste management plan; use of renewable energy sources when possible; making use of environmentally friendly consumer products (e.g. biodegradable soap, recycled paper and pesticides) and protecting threatened species.

CHAPTER 6 - CONCLUSIONS AND RECOMMENDATIONS

6.1. INTRODUCTION

The main objective of this study was to determine the conservation management practices on private game farms/reserves and to understand how those practices could influence tourists' experience. To achieve the primary objective, the following secondary objectives were set:

Objective 1: To undertake a literature analysis of the following: wildlife tourism, and the private wildlife industry in South Africa. This was met in Chapter 2.

Objective 2: To analyse literature regarding private game reserves, conservation management and tourism experiences. This was met in Chapter 3 and Chapter 4.

Objective 3: To perform empirical research on aspects of conservation management of private game reserves in South Africa. This was met and discussed in Chapter 5.

Objective 4: To conclude and make recommendations concerning the study for further research based on the content of and results from Chapters 1 to 5. Various conclusions and recommendations can be made concerning the objectives of the study. In the present chapter, the primary focus will be placed on the main conclusions regarding the literature study and empirical results. Recommendations stemming from the study will also be made.

Chapter 6 is divided into three main sections:

- 6.2.1: Conclusions regarding the literature study;
- 6.2.2: Conclusions regarding the empirical results and;
- 6.2.3: Recommendations.

6.2. CONCLUSIONS

This section is split into two parts; the first contain conclusions from the literature study (Chapters 1, 2, 3 and 4) with the second part offering conclusions regarding the empirical results (Chapter 5).

6.2.1. CONCLUSIONS REGARDING THE LITERATURE STUDIES

This part is divided into four sections, the first dealing with the pillars of the wildlife industry, the second with wildlife conservation, the third with the conservation management practices and the fourth with tourism experience.

6.2.1.1. PILLARS OF WILDLIFE INDUSTRY

The following conclusions can be reached regarding the pillars of wildlife industry in South Africa. The literature discusses the following:

- The private wildlife industry in South Africa has four main pillars, namely: wildlife tourism, hunting, game breeding and sales, and game products (cf. 1.2).
- Wildlife tourism can be defined as an area of overlap between nature-based tourism, ecotourism, consumptive and non-consumptive use of wildlife, rural tourism and human relations with wildlife. It is tourism that is based on encounters with non-domestic (non-human) animals (cf. 2.2).
- Wildlife tourism has become the leading and fastest growing sector in the tourism area, with 88% of all visitors to South Africa having some form of wildlife experience while visiting (cf. 1.1).
- Wildlife tourism plays an important role in sustaining economic benefits while supporting wildlife conservation and local communities. For that reason, governments, the private sector, the tourism industry as well as researchers have much more of an interest in tourism where tourists interact with wild animals (cf. 2.4.1).
- As wildlife tourism grows, so does the need to conduct research, and to understand and manage potential impacts on wildlife and their environment. Science and research, complemented by long-term monitoring, can contribute to increasing knowledge and better management (cf. 2.4.1).
- Hunting is the practice of killing or trapping animals or pursuing or tracking them with the intent of doing so (cf. 2.4.2).
- In South Africa, hunting can be divided into two different categories: biltong hunting (meat hunting) and trophy hunting, and it is the main driving force behind what is believed to be the largest sector of the wildlife industry in South Africa (cf. 2.4.2).
- The concept of biltong was originated in South Africa, and it is a type of cured meat and is made from various types of meat, such as beef and game. Unlike biltong hunting, trophy hunting is a form of hunting, also referred to as professional or safari hunting, where a foreign tourist enrols in a hunting experience as a hunter and has a professional hunter to guide him/her (cf. 2.4.2).

- The hunting sector has an important role within the wildlife industry, as it creates the demand for trophy breeding, contributes to wildlife tourism as hunters and their families visit wildlife protected areas, and increases the demand for wildlife products (cf. 2.4.2).
- Game breeding and sales refer to farmers breeding wildlife to be sold either at auctions or privately (cf. 2.4.3).
- The breeding industry consists of three areas, namely breeding of plains game species, high value or endangered species breeding, and the breeding of colour variants. A fourth category can be added, and that is the breeding of predators (cf. 2.4.3).
- Recent progress in the breeding and live sales industry of higher value and colour and morphological variants offered the motivation for large-scale innovation and infrastructure development in the country, which helped the process of marketing live game animals (cf. 2.4.3).
- Due to the breeding and sale of the high-value game, it was necessary for an intensification of the breeding systems with the purpose of improving the utilisation of the natural resources (cf. 2.4.3).
- Game products are any material that comes from the body of an animal that is later on sold. It consists of various products such as horns, game meat, skins, feathers, eggs, medicine, curious, shoes, clothing, furniture, jewellery, handbags and fashion accessories of which game meat is the biggest (cf. 2.4.4).
- In order to use game animals for meat, the meat must be approved, must be registered on a slaughter facility and inspected by an independent game meat inspector. It is important to have this requirement to ensure meat quality and food safety, but the commercial use of carcasses of hunted trophy animals cannot enter an abattoir as the carcass can be contaminated (cf. 2.4.4).

6.2.1.2. WILDLIFE CONSERVATION

The following conclusions can be reached regarding wildlife conservation. The literature discusses the following:

- Conservation can be described as the way in which the earth's resources are put to use to such an extent as to preserve it for future generations and the support of all forms of life on earth (cf. 3.3).
- Wildlife conservation is the regulation of wild animals and plants in such a way as to provide for their continuance. A simpler definition of wildlife conservation is the management of species through sustainable practices to ensure that future generations can enjoy it as well (cf. 3.3).
- There are efforts with the aim of preventing the depletion of present populations and to ensure the continued existence of the endangered species.

Those efforts involve the establishment of sanctuaries and controls on hunting, use of land, the importance of exotic species, pollution and the use of pesticides (cf. 3.3).

- Wildlife conservation's role is to maintain the balance of various ecosystems (cf. 3.3).
- Wildlife faces the destruction of habitat through drainage, agriculture and urban expansion, and the fragmentation of habitat into parcels too small for wildlife populations to use. Another threat that affects wildlife is the illegal trade of feathers, horns, ivory, skins and organs (cf. 3.3).
- Wildlife is an important biological, economic and recreational resource that can be maintained through careful management (cf. 3.3).

6.2.1.3. CONSERVATION MANAGEMENT PRACTICES

The following conclusions can be arrived at regarding conservation management practices:

- Most of the time, the impact of humans on landscapes is only considered in areas outside of game farms/reserves, but even in protected areas, humans influence the landscape dynamics by altering fire frequencies, bush clearing, and introducing and removing animals (cf. 3.4).
- One of the most important aspects of game reserves is conservation management. Periodically, the owner/manager must determine how much must be managed (cf. 3.4).
- The science of conservation management has evolved rapidly over the past few decades. It is a necessity to manage a wildlife area according to an ecological conservation management plan, to ensure healthy wildlife populations and healthy habitats (cf. 3.4).
- Depending on the landowner's capacity, private game farms/reserves have different levels of conservation management, as well as different conservation opportunities. Therefore, different private game farms/reserves can have different conservation management practices or maybe have a few similar practices (cf. 3.4).
- Private game farms/reserves that are being managed effectively and correctly will play a more important role in southern Africa conservation and at the same time maintaining a viable harvest (cf. 3.4).
- In South Africa, the small size of many game farms/reserves intensifies these challenges, as there is a need for more intensive management. Small enclosed game farms/reserves prevent natural dispersion, dispersion of juveniles, emigration, and the immigration of new individuals that create diversity in local gene pools (cf. 3.5).

- It is vital to monitor systems to assess ecosystem health and management impacts, as is the necessity of integrating science and management to inform of the need for and the consequences of interventions. Management also needs to be driven by conservation and must utilise the most appropriate tools to achieve its objectives (cf. 3.5).
- These are the most common conservation practices used on state and private game reserves in South Africa: water points, waste water, roads, removal of structures, bush-encroachment control, soil erosion reclamation, veld fire management, veld management, alien plant control, stocking rate and grazing capacity of large herbivores, disease control, waste management, game introductions, bomas, release ramps and holding pens, game counting, game capture, loading, transportation and unloading of wild animals, predator management, problem animal control and culling (cf. 3.6).
- The management of the game farm/reserve will enable the owners to know the number of game, the current veld conditions, whether the animals' population is growing, whether they need to introduce new blood to prevent inbreeding and to be prepared for dry seasons (cf. 3.5).

6.2.1.4. TOURISM EXPERIENCE

The following conclusions can be reached regarding the tourism experience. The literature discusses the following:

- Tourism experience is a product or service that, when combined with its surrounding experiences and events, goes beyond itself to enhance or bring value to a tourist's life. These experiences are the result of encountering, undergoing or living through situations that provide sensory, emotional, cognitive, behavioural, relational and functional values (cf. 4.1).
- A memorable experience is very special, emotionally charged, and potentially life-altering in that it may contribute to personal growth or renewal of a person. It is also an experience that visitors will not only remember, but also treasure long after the event is over; therefore, it has mental, spiritual and physiological outcomes (cf. 4.1).
- Tourist experiences offered at national parks can be seen as tangible (infrastructure and facilities) or intangible (enhancing the quality of life); with the latter being those experiences that specifically create unforgettable memories for tourists (cf. 4.1).
- A positive tourism experience will lead to a high level of satisfaction for the tourists, which is an important factor because it guarantees return visits and the sustainability of the tourism product. The provision of quality nature experiences is, therefore, a vital component for reserve management to manage game farms/reserves successfully (cf. 4.1).

- Because game farms/reserves are protected areas that preserve the biodiversity and enhance conservation, the expectations of tourists of game farms/reserves would be to experience and perceive quality, natural environments. Therefore, environmental impacts that occur in game farms/reserves due to tourism have the ability to influence the experience of tourists adversely (cf. 4.1).
- The importance of management on game farms/reserves to create a memorable experience for visitors will ensure positive word-of-mouth recommendations, increase revenue, create loyalty, generate competitive advantage, provide a means of personification of the reserve's brand and contribute to the sustainability of the game farm/reserve (cf. 4.1).
- For the wildlife tourism industry, it is important to understand what makes a memorable wildlife experience for the managers/owners to provide a memorable experience (cf. 4.2).
- There are a few factors that can influence a memorable wildlife experience, namely setting conditions, visitor characteristics and wildlife characteristics (cf. 4.3).
- Setting conditions include elements such as the variety of animals, large numbers of animals, natural setting, quality of interpretation, knowledgeable staff, clear orientations, pleasant physical setting, and absence of crowded places. The second factor, visitor characteristics, includes elements such as the culture of the tourist, previous experiences and social group. The third factor, wildlife characteristics, refers to elements such as the size of the animals, their colour, rareness, whether they are dangerous, the presence of small or baby animals and endangered species (cf. 4.3).
- The aspects that game farms/reserves do have control over are more tangible, such as the species' variety, a number of a specific species, management of the reserve (conservation management), management of facilities, infrastructure and the products that are provided. The implication is that owners/managers of game farms/reserves need to manage effectively those aspects that they do have control over. They must make sure that the conservation management is up to standard, while providing tourists with opportunities to encounter wildlife (cf. 4.5).

6.2.2. CONCLUSIONS REGARDING THE EMPIRICAL RESULTS

This part consists of two sections: conclusions regarding the interviews conducted with the game managers/owners; and the conclusions regarding the interviews conducted with the tourists.

6.2.2.1. CONCLUSIONS FROM THE RESERVE MANAGERS/OWNERS

The following conclusions can be reached regarding the reserve managers/owners. The research discusses the following:

- The study indicated that the majority of the interviewees (50%) were owners of the game farms/reserves, the majority have expanded their land (87.5%), the original land use was livestock farming (100%), and the main land use is wildlife tourism (100%). Therefore, they added land to wildlife conservation in South Africa.
- The majority of the game farms/reserves are situated in the Limpopo province (25%).
- The majority of the interviewees (87.5%) have more than 50 bed lodges on their land, and only three of the interviewees (37.5%) have hunters on their land.
- The core aspects the interviewees contribute to conservation management on private game farm/reserves are: monitor vegetation, monitor wildlife, game counting, road management, stocking rate and grazing capacity of large herbivores, removal of invasive alien plant species, providing water source for game, waste management, responsible production practices (genetics), anti-poaching units, soil erosion control measures, veld fire management, removal of infrastructures, waste water management, transportation and relocation of game, bomas, bush-encroachment control, vegetation clearing, dehorning rhinos, rehabilitation of riverbanks, culling, predator control and providing supplementary feed for game.
- All interviewees contribute to the environment by implementing good environmental practices. The core aspects that the interviewees implement are: reduction of litter, taking measures to eradicate invasive alien species, protecting threatened species, reducing negative impacts, solid waste management plan, increasing environmental awareness and promoting positive environmental ethics among tourists, providing tourists with information regarding environmentally friendly practices, making use of water-saving techniques, using renewable energy sources when possible, reducing of greenhouse emissions and other contributors to climate change, community projects, school awareness, using organic materials and making use of environmentally friendly consumer products.

6.2.2.2. CONCLUSIONS FROM THE TOURISTS' EXPERIENCE

The following conclusions can be reached regarding the tourists' experience. The research discusses the following:

- This study indicated that the majority of interviewees (66.4%) are male, their average age is +60 with the majority of interviewees from the United States of America (58.1%).
- The most common reason for visiting South Africa was to see wildlife (animals) (91.3%), the majority of the interviewees stayed for one to five days (49.8%) and had previous experience on game farms/reserves (66.4%).
- The aspects that contributed more towards the interviewees' memorable experience were: good conservation practices, natural settings, variety of animals, rare and unique species, large number of wildlife, uniqueness of the encounter, close proximity, authenticity of encounter, presence of predators, quality facilities, duration of the encounter, charisma and appeal of the species, specie's statues, surprise and novelty, intensity of the encounter, presence of Big 5, unexpected events, weather, knowledge of guides, local people and previous research.
- These are the conservation management aspects that influence positively the tourists' experience: anti-poaching units, removal of invasive alien plant species, monitor wildlife, providing water sources for game, game counting, waste management, transportation and relocation of game, responsible production practices, disease control, stocking rate and grazing capacity of large herbivores, monitoring vegetation, waste water management, vegetation clearing, veld fire management, bush-encroachment control, predator control, soil erosion control measures, providing supplementary feed for game, culling, road management and removal of infrastructures.
- And finally, these are the important environmentally friendly aspects on game farms/reserves according to the interviews: reduction of litter, solid waste management plan, use of renewable energy when possible, making use of environmentally friendly consumer products, protecting threatened species, making use of water-saving techniques, increasing environmental awareness and promoting positive environmental ethics among tourists, taking measures to eradicate invasive alien species, reducing of negative impacts, informing tourists regarding environmentally friendly practices, providing tourists with information about conservation and/or community projects, and reducing of greenhouse emissions and other contributors to climate change.

6.3. RECOMMENDATIONS

As mentioned in Chapter 1, the primary objective of this study was to determine conservation management practices for private game farms/reserves in South Africa. With the information and research gathered in this study, it was possible to develop a

conservation management guidelines that can be used for game farmers/owners to manage their land. The following conservation management guideline is therefore proposed to private game farms/reserves to maintain a balanced and healthy ecosystem. This section will be categorised in two parts, the first one is conservation management guidelines for game owners/managers themselves; and the second part, are the conservation management guidelines that game owners/managers, NGO's and Government, need to cooperate in.

Conservation management guidelines the game owners/managers can do by themselves in their game farm/reserve:

- Monitor vegetation: It is necessary to monitor possible changes over time, because any noticeable change can indicate success or the opposite of the management programme. Monitoring vegetation is a logical outcome of the determination of veld condition. This can be done by taking photos of different areas on the farm which can then be compared over number of years.
- Monitor wildlife: Wildlife should be monitored regularly throughout the year, to determine the game species present, the number of individuals, their health, irregular behaviour and other aspects to consider regarding the well-being of the wildlife. It's important to monitor wildlife because for farm owners a change in numbers can influence the balance of the farm. For example, too many predators will cause a decrease on the number of herbivores and with that can cause bush encroachment. This is important for carrying capacity.
- Game counting: The primary aim of this practice is to estimate the number of wildlife in a given area. To have a reliable number of individuals in a population, it is better to make repeatable (precise) counts rather than accurate counts of game. With this, it will be possible to calculate reliable growth or decreased percentages and growth rates of the population, as well as, assisting in managing the carrying capacity of the game farm/reserve. As mention above, a change in numbers can influence the balance of the game farm, as too many herbivores will cause overgrazing of the game farm/reserve.
- Road management: Because roads are a disturbance to the natural environment, roads on game farms/reserves need to be placed with care, to avoid destruction of plants and small animals, as well as to avoid erosion problems and habitat deterioration. If road management is managed it will result in less destruction around the roads and it's less invasive for the environment and wildlife. As seen before in our Results, some interviewees do it every year and then control it and use small equipment to avoid destruction. Tourists will enjoy more the game drive if it's managed.
- Stocking rate and grazing capacity of large herbivores: Grazing capacity is the number of wildlife that an area can support at a maximum constant, without the deterioration of the veld condition. It is important to manage because

when the number of wildlife on a specific area exceeds the grazing capacity, the veld condition will deteriorate. Therefore, it is important to maintain wildlife numbers that do not exceed the carrying capacity.

- Waste management: It can be done by minimising waste production at all sources, improving the recycling and by removing all waste on the game farms/reserves. In a lot of cases, the waste is given to local communities, as they will sort the plastic and bottles and that will go to recycling, creating job opportunities. For the tourists, this will show awareness and involvement in conservation, and tourists will want to be a part as well.
- Removal of infrastructures: To provide tourists with an authentic nature and wildlife experience, most game owners/managers must remove any signs of old infrastructures left behind that cannot be used.
- Waste water management: This is something not always seen as important. Game owners/managers need to look into waste water management plans, especially where there is tourism accommodation.
- Culling: Although culling is a management option, it should only be used when the other options have been exhausted, and it should be done professionally and humanely.
- Predator control: For farm owners/managers a change in numbers can influence the balance of their farm. For example, too many predators will cause a decrease on the number of herbivores and with that can cause bush encroachment. In most cases, this is done and run by the game owner/manager, but NGO's or Government can supply information and contact details on how it can be done better and where to get assistance.

Conservation management guidelines that needs to be jointly managed by game owners/managers, NGO's (WRSA) and Government:

- Soil erosion control measures: It is important to continue to manage erosion through the implementation of specific methods depending of the area and the type of erosion. Some of the methods used for soil erosion control are: cover through tillage, cropping and grazing practices; utilise vegetation to reduce erosive energy and catch sediment; and employ amendments to decrease sedimentation in runoff. As seen before on the results, as a way to prevent more soil erosion, some game farmers/owners manage have roads to prevent and create water channels, or put a specific structure in place to prevent further soil losses in areas where there is zero grass covering and also, in areas where there is no extensive current damage, it's reaped and seeded in order to stabilise the soil. The Government can also provide subsides, as they have teams payed by the government to assist in minimising soil erosion on game farms/reserves.

- Removal of invasive alien plant species: It is of great importance to remove alien plant species as these species will modify the structure and complexity of the physical environment and will restrict the opportunities for the wildlife to move, create nests, find refuge and will also indirectly affect food resources. Because it is an exhausting and sometimes expensive activity, the game owners/managers sometimes need help from the Government or NGO's. Government can provide subsides for poison for the invasive species, as they can have teams payed by the government to assist in clearing invasive species. The NGO's can assist owners and managers with information on how to do it and where to get assistance.
- Anti-poaching units: Game owners/managers must work together with anti-poaching as it is a national problem. Governmental must have a national plan for anti-poaching that include the private sectors. NGO's on the other hand need to give guidance and support to link the private sector with relevant role players and government to get assistance.
- Veld fire management: As a way to manage the veld fire, some game farmers/owners use fire breaks or control encroachment and food standards for the animals. There are governmental organizations and NGO's that supply teams, provide subsides, provide help in case of fires. When veld fire is not managed, the neighbourhood game farmers/owners come together and help finish the fire.
- Bush-encroachment control: For the farm owner/manager, if bush encroachment is managed, it will result in better pastures for game, which means more grass. The NGO can supply information and contact details on how it can be done and where to get assistance. Government can provide subsides for poison for bush encroachment, as they have teams payed by the government to assist in clearing invasive species. And tourists, if bush encroachment is not done, they might not have a good game viewing opportunity, as they won't be able to see game.
- Dehorning rhinos: The de-horning of rhinos and poaching measures contribute to the reduction in poaching. This activity is a costly exercise that is dependent on several factors, such as their population density, area size, vegetation and terrain. There are governmental organizations, as well as, NGO's that supply teams, provide subsides and help dehorning rhinos. This will influence tourist's experience as they want to see places that are protecting endangered species.
- Rehabilitation of riverbanks: It is important to evaluate the river's condition before doing any type of rehabilitation by comparing the existing measured condition of the river to its natural condition, to understand how degraded the river is. There are five methods to stabilise the riverbanks: vegetation alone; vegetation with structural control; vegetation and structural control with bank shaping; structural control alone; and bioengineering methods. If the

management is done, the game farmers/owners and their game will benefit from the better water quality and filtration of water on the surrounding areas. As seen previously on our results, some game farmers/owners plant reeds to help rehabilitate the riverbanks. In most cases, this is done by the game owner/manager, but sometimes NGO's can help with information and contact details on how it can be done and where to get assistance. Government can also provide subsides, as they have teams that assist in rehabilitating riverbanks.

6.3.1. RECOMMENDATIONS REGARDING FUTURE RESEARCH

The following areas identified from the research needs future research:

- To research methods to improve current permit system for transportation and relocation of wildlife;
- Legislation of private game reserve management, as well as, the private wildlife industry;
- Clear, more informative and more recent information on conservation management practices in general, but specifically on private game reserves. As there is not a lot of information regarding this matter and most sources are outdated.

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APPENDIX A: CONSERVATION MANAGER QUESTIONNAIRE

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23 April 2018

CONSERVATION MANAGEMENT SURVEY

Producer survey questionnaire

Assessing conservation management practices within South Africa's private game reserves

Conservation management

Game reserve:	Interviewer:	Date:

Section A – Demographic details

1. Name of farm/game reserve: _____

2. Respondent's position on the farm:

_____ Owner

_____ Manager

_____ Shareholder

_____ Other: _____

3. Province located: _____

4. Current size of the game farm/reserve: _____ hectares

5. Start-up size when established: _____

6. What was originally practised on the land before?

_____ Livestock farming

_____ Crop farming

_____ Bare land/community land

_____ Poultry

_____ Other: _____

7. Main land-use form:

_____ Hunting

_____ Breeding

_____ Wildlife tourism

_____ Meat production

_____ Mixed farming (livestock/crop)

_____ Other: _____

8. Number of:

Beds: _____

Hunters per year: _____

Tourists per year: _____

9. Animal species present on the game farm/reserve and approximately how many:

"X"	Species	Approx. number	"X"	Species	Approx. number
	Aardwolf			Kudu	
	Blesbuck			Lechwe	
	Bontebok			Leopard	
	Buffalo			Lion	
	Bushbuck			Mountain reedbuck	
	Bush pig			Nyala	
	Cheetah			Oribi	
	Caracal			Ostrich	
	Duiker: Common			Reedbuck	
	Duiker: Blue			Roan antelope	

	Duiker: Red	Rhino: black
	Eland: Common	Rhino: white
	Eland: Livingstone	Sable antelope
	Elephant	Sitatunga
	Gemsbok	Springbok
	Giraffe	Steenbok
	Grey rhebok	Tsessebe
	Hartebeest	Warthog
	Hippopotamus	Waterbuck
	Hyena: Spotted	Wildebeest: Black
	Hyena: Brown	Wildebeest: Blue
	Impala	Wild dog
	Jackal: Black-backed	Zebra: Burchell's
	Jackal: Side-stripped	Zebra: Mountain
	Klipspringer	Other

Section B – Conservation management

1. Does a conservation management plan exist for the reserve/farm? _____ Yes _____ No

If "No", why not?

_____

2. Is there a conservation manager appointed? _____ Yes _____ No

3. What are the main conservation management aspects practised by you on the land? What is its importance?

1 – Not at all important; 2 – Less important; 3 – Neither important nor less important; 4 – Very important;

	Anti-poaching units	1	2	3	4	5
	Removal of invasive alien plant species	1	2	3	4	5
	Soil erosion control measures	1	2	3	4	5
	Monitor vegetation	1	2	3	4	5
	Monitor wildlife	1	2	3	4	5
	Provide water source for game	1	2	3	4	5
	Provide supplementary feed for game	1	2	3	4	5
	Vegetation clearing	1	2	3	4	5
	Veld fire management	1	2	3	4	5
	Removal of infrastructures	1	2	3	4	5
	Game counting	1	2	3	4	5
	Waste management	1	2	3	4	5
	Culling	1	2	3	4	5
	Waste water management	1	2	3	4	5
	Bomas	1	2	3	4	5
	Road management	1	2	3	4	5
	Bush-encroachment control	1	2	3	4	5
	Stocking rate and grazing capacity of large herbivores	1	2	3	4	5

	Predator control	1	2	3	4	5
	Transportation and relocation of game	1	2	3	4	5
	Responsible production practices (genetics)	1	2	3	4	5
	Other:	1	2	3	4	5
	Other:	1	2	3	4	5
	Other:	1	2	3	4	5

4. Do you feel that good conservation management practices influence tourists' experience? _____ Yes _____ No

Motivate your answer

_____

_____

5. Do you increase awareness and positive environmental ethics? _____ Yes _____ No

How?_____

_____

6. Which of following environmental practices do you implement on your land? What is its importance and what do you do?

1 – Not at all important; 2 – Less important; 3 – Neither important nor less important; 4 – Very important;

	Reduction of litter	1	2	3	4	5
	Reduction of negative impacts (e.g. noise, light and erosion)	1	2	3	4	5

	Make use of environmentally friendly consumer products (e.g. biodegradable soap, recycled paper and pesticides)	1	2	3	4	5
	Solid waste management plan	1	2	3	4	5
	Reduction of greenhouse emissions and other contributors to climate change	1	2	3	4	5
	Use of renewable energy sources when possible	1	2	3	4	5
	Increase environmental awareness and promote positive environmental ethics among tourists	1	2	3	4	5
	Provide tourists with information regarding environmentally friendly practices (e.g. water-saving and recycling techniques)	1	2	3	4	5
	Make use of water-saving techniques (e.g. low-flow or dual-flush toilets and low flow showerheads)	1	2	3	4	5
	Make measures to eradicate invasive alien species	1	2	3	4	5
	Protect threatened species	1	2	3	4	5
	Other:	1	2	3	4	5
	Other:	1	2	3	4	5
	Other:	1	2	3	4	5

Thank you very much for your time and answers!

APPENDIX B: TOURISTS' EXPERIENCE QUESTIONNAIRE

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23 April 2018

Producer survey questionnaire

Assessing conservation management practices within South Africa's private game reserves

Tourists' experience

Game reserve:	Interviewer:	Date:

Section A – Profile details

1. Gender: _____ Male _____ Female

2. In which year were you born? _____

3. Country of residence? _____

4. Reason for visit and what is its importance?

1 – Not at all important; 2 – Less important; 3 – Neither important nor less important; 4 – Very important; 5 – Extremely

	To see endangered species	1	2	3	4	5		Park has been visited since childhood	1	2	3	4	5
	To see animals	1	2	3	4	5		To experience wildlife	1	2	3	4	5
	To see plants	1	2	3	4	5		Family time	1	2	3	4	5
	For educational reasons	1	2	3	4	5		Different species	1	2	3	4	5
	To take photos of animals	1	2	3	4	5		To explore new destinations	1	2	3	4	5
	To take photos of plants	1	2	3	4	5		Socialising with friends	1	2	3	4	5
	To attend conferences	1	2	3	4	5		Routine vacation	1	2	3	4	5
	To attend events	1	2	3	4	5		Relaxation	1	2	3	4	5
	Hiking	1	2	3	4	5		Wellness	1	2	3	4	5
	Accommodation	1	2	3	4	5		Hunting	1	2	3	4	5
	Brand of the game farm/reserve	1	2	3	4	5		Other:	1	2	3	4	5
	Climate of location	1	2	3	4	5		Other:	1	2	3	4	5
	Grew up with the game farm/reserve	1	2	3	4	5		Other:	1	2	3	4	5

5. Length of stay? _____

6. Past experience on game farms/reserves? _____ Yes _____ No

If 'Yes', how many times? _____

Section B – Experience and conservation details

1. Which of the following aspects you think contribute to a memorable wildlife experience? And what is its importance?

1 – Not at all important; 2 – Less important; 3 – Neither important nor less important; 4 – Very important; 5 –

	Variety of animals	1	2	3	4	5
	Large number of wildlife	1	2	3	4	5
	Rare and unique species	1	2	3	4	5
	Specie's status (e.g. endangered species)	1	2	3	4	5
	Presence of Big 5	1	2	3	4	5
	Presence of predators	1	2	3	4	5
	Charisma and appeal of the species	1	2	3	4	5
	Natural settings	1	2	3	4	5
	Quality facilities	1	2	3	4	5
	Authenticity of encounter	1	2	3	4	5
	Surprise and novelty	1	2	3	4	5
	Unexpected events (e.g. kills)	1	2	3	4	5
	Intensity of the encounter	1	2	3	4	5

	Uniqueness of the encounter	1	2	3	4	5
	Duration of the encounter	1	2	3	4	5
	Good conservation practices	1	2	3	4	5
	Close proximity	1	2	3	4	5
	Other:	1	2	3	4	5
	Other:	1	2	3	4	5
	Other:	1	2	3	4	5

2. Do you think it is important to have a conservation management plan on the reserve/farm? _____ Yes _____ No

Why?

_____

3. Which of the main conservation management aspects do you think are important to be practised on a game farm/reserve that will have an impact on your overall experiences? How important?

1 – Not at all important; 2 – Less important; 3 – Neither important nor less important; 4 – Very important; 5 – Extremely important

	Anti-poaching units	1	2	3	4	5
	Removal of invasive alien plant species	1	2	3	4	5
	Soil erosion control measures	1	2	3	4	5
	Monitor vegetation	1	2	3	4	5
	Monitor wildlife	1	2	3	4	5
	Provide water sources for game	1	2	3	4	5

	Provide supplementary feed for game	1	2	3	4	5
	Vegetation clearing	1	2	3	4	5
	Veld fire management	1	2	3	4	5
	Removal of infrastructures	1	2	3	4	5
	Game counting	1	2	3	4	5
	Disease-control	1	2	3	4	5
	Waste management	1	2	3	4	5
	Culling	1	2	3	4	5
	Waste water management	1	2	3	4	5
	Road management	1	2	3	4	5
	Bush-encroachment control	1	2	3	4	5
	Stocking rate and grazing capacity of large herbivores	1	2	3	4	5
	Predator control	1	2	3	4	5
	Transportation and relocation of game	1	2	3	4	5
	Responsible production practices (genetics)	1	2	3	4	5
	Other:	1	2	3	4	5
	Other:	1	2	3	4	5
	Other:	1	2	3	4	5

4. Do you feel that good conservation management practices influence tourists' experience? _____ Yes _____ No

Motivate your answer.

_____

_____

5. Which of following environmentally friendly practices do you think are important on the game farm/reserve?

1 – Not at all important; 2 – Less important; 3 – Neither important nor less important; 4 – Very important; 5 – Extremely important

	Reduction of litter	1	2	3	4	5
	Reduction of negative impacts (e.g. noise, light and erosion)	1	2	3	4	5
	Make use of environmentally friendly consumer products (e.g. biodegradable soap, recycled paper and pesticides)	1	2	3	4	5
	Solid waste management plan	1	2	3	4	5
	Reduction of greenhouse emissions and other contributors to climate change	1	2	3	4	5
	Use of renewable energy sources when possible	1	2	3	4	5
	Increase environmental awareness and promote positive environmental ethics among tourists	1	2	3	4	5
	Provide tourists with information about conservation and/or community projects	1	2	3	4	5
	Inform tourists regarding environmentally friendly practices (e.g. water-saving and recycling techniques)	1	2	3	4	5
	Make use of water-saving techniques (e.g. low-flow or dual-flush toilets, low-flow showerheads, frequency of towel change)	1	2	3	4	5
	Make measures to eradicate invasive alien species	1	2	3	4	5
	Reduction of damage to natural vegetation due to trampling and off-roading	1	2	3	4	5
	Protect threatened species	1	2	3	4	5
	Other:	1	2	3	4	5
	Other:	1	2	3	4	5
	Other:	1	2	3	4	5

Is there anything you would like to add or recommend? We would love to hear!

Thank you very much for your time and answers!