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Research Article

The attitudes of tourists towards the environmental, social and managerial attributes of Serengeti National Park, Tanzania

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Abstract

Serengeti National Park is a world class icon for wildlife tourism attracting a diverse group of tourists from all over the world. The park has played a pivotal role in protecting large populations of wildlife species of the Eastern African savannah and the globally outstanding biological phenomena such as the annual migration of wildebeest. However, the history of the park is also characterised by resource use conflicts and pressures that could threaten the current quality of the visitor environment. In this paper we examine the attitudes of international visitors toward the management and attributes of the park. Overall, the tourists report a high degree of satisfaction with most aspects of their trip. Yet, the current tourists are concerned about possible future changes that could alter the visitor environment and idealized images of the African wild lands. Basic environmental attitudes (degrees of ecocentrism) have effects on attitudes toward management of the park. Tourists expressing a high degree of ecocentrism are more likely to support management actions aimed at controlling tourism activities, access and impacts. They also express a stronger interest in experiencing nature, wilderness and local culture. The results are discussed in light of the major impact factors and conservation issues facing the management of Serengeti National Park; poaching, poverty in surrounding communities, increasing population pressure, habitat degradation, and wildlife diseases.

Key words: Serengeti National Park, tourism, attitudes, ecocentrism, management.

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Introduction

Protected areas are increasingly being construed as important tools for biodiversity management and conservation despite some reservations that there is no automatic link between setting aside land for conservation and achieving conservation and/or related biodiversity goals [1-4]. There is little doubt that many of the World's large national parks have been critical institutions for protecting natural environments, even though the original reasons for protection were other than biodiversity concerns [5]. Recent evidence however, also indicates that African protected areas generally have failed to mitigate human-induced threats to large mammal populations (6). In many cases national parks have been established in order to fulfil idealized images of nature, social constructions that is, of what the wild environment should look like (7- 11) Typically, these parks have been established in areas with high scenic qualities and often with high densities of wildlife populations. The role of tourism has been critical for achieving sufficient support and legitimacy for making controversial land use decisions, often with major impacts on local people [12-14]. Yet, the question often remains; what is the contribution of tourism to conservation, and what images of nature do tourist seek when they visit outstanding places? In this paper we examine the perceptions and attitudes of tourists towards the management aspects of Serengeti National Park, a world class icon for wildlife-based tourism.

Political and economic benefits from tourism, rather than ecological reasons, generally prompted the African post-colonial governments to endorse continuation of colonial conservation policies and setting aside more land for wildlife conservation [7, 9]. In East Africa tourism contributes to national budgets as well as to the management of protected areas [15] sometimes leading to perception that parks cannot survive without tourism. Tourism revenues allow for recruitment of staff, good infrastructure and multiple management operations. Revenues also protect habitats and species indirectly in the instances where the welfare of local communities is improved, thereby counteracting incentives to pursue the economic choices that are ecologically destructive [16-19].

The ways in which tourism patterns are influenced by economic, social and political fluctuations can be epitomised by several recent events. For example, the impact of September 11 terrorist attacks in America's World Trade Centre was felt by most of the global tourism industry although the industry recovered fairly quickly [20]. Bombing of American embassies in Dar es Salaam and Nairobi in 1998 caused a stagnation of tour business and a drastic drop of inquiries about holidaying in Tanzania with some clients who had already booked for safaris calling back to cancel bookings. Economic embargoes and poor image imposed on Zimbabwe government, following its land reform programme lowered the tourism revenues from US$700 million in 1999 to US$71 million in 2003 and over 80% of its large game in private conservancies was illegally hunted [21]. As a result of political unrest in Kenya caused by the 2007 controversial presidential election , the tourism revenues plummeted by 54 percent in the first quarter of 2008 [22]. Other factors such as changing political directions within a country, military conflicts, extensive conflicts with local communities bordering the parks, transboundary conflicts, suppression of indigenous populations and their rights to resources, extractive use of resources within or close to a protected area, are all examples of forces which have limited, changed or even eliminated tourism in protected areas around the world [1].

The role of wildlife tourism in conservation

Wildlife-based tourism is a large segment of the nature based tourism industry and its popularity is growing [23]. Like other forms of tourism, it has potential to pose negative impacts on wildlife populations, environments and cultures. The behaviour of tourists is often at odds with rules and regulations or vulnerability concerns given the attraction factor of certain species [24, 25]. In the perspective of both biodiversity conservation and tourism development, it is crucial that tourism activities do not cause adverse environmental impacts. Unfortunately, there are many examples from around the World where tourism has had significant negative impacts to wildlife. Well known

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examples are Kenya's Maasai Mara National Reserve (Serengeti's neighbour), Amboseli, and Nairobi National Parks, where excessive numbers of tourists in vehicles have endangered the cheetah population, as well as Galapagos where the bird life is impacted by a number of factors in the aftermath of the wildlife tourism boom [26]. In Kenya, a large part of the national economy depends on wildlife-based tourism, and the country has developed national guidelines for ecotourism. Still, the industry is threatening both the species and habitats through disturbances on breeding and foraging patterns [27, 28].

Wildlife based tourism can in some forms be regarded as a type of ecotourism, and is often perceived to be effective in promoting conservation of important species and habitats in developing countries [29 – 31]. Conservation tourism is even emerging as a rapidly growing subsector of ecotourism [32]. It is however, difficult to generalise about the multifaceted relationship between nature-based tourism and conservation [33 – 36]. Arguably ecotourism can create economic incentives for poor villagers and their communities through sound stewardship of local resources, but adequate institutions for management as well as equitable distribution of resources are often lacking [31, 37-39]. There is widespread understanding that the economic incentives of ecotourism must be sufficient to outweigh alternative, consumptive uses of biodiversity resources shall ecotourism contribute to conservation [38, 40 – 42]. A major concern is leakage of revenue, i.e. the fact that income from ecotourism provides minimal economic benefit for host communities [38, 43 – 45]. However, whatever amounts that are retained may still be significant compared to other available sources of revenue, and hence of great importance to local communities [46]. Research indicates that often will non-use values outweigh use- or consumptive values (clearcutting, pasture etc.). As such ecotourism can be support conservation, but meeting the requirements of ecotourism can still be very difficult [47-49]. As Kiss [50] shows the contribution of community based ecotourism to biodiversity conservation is typically limited by factors such as small areas, few people involved, small earnings, weak links between biodiversity gains and commercial success, as well as the competitive and specialised nature of the tourism industry. Ecotourism has been shown to positively affect awareness towards conservation, but the level of awareness and potential commitment to sustainable management actions are partly dependent on how directly the people in question benefit from conservation [33, 51].

Visitor attitudes and environmental beliefs

The quality of the natural environment plays a key role in attracting international visitors to tourist destinations. In many ways African national parks represent a social construction or idealized western image of what the traditional African landscape should look like [7]. In the case of protected areas, popular media through books, documentaries etc. portray vast scenic landscapes without people but inhabited by select and spectacular wildlife species. Post World War II management strategies in African national parks have in many ways attempted to match this image [9, 10, 52], and hence directly and indirectly furthered biodiversity conservation interests.

How visitors to national parks think about nature in general influences their perception of specific places and their more or less idealized concept of attractive environments, and ultimately their attitudes toward conservation. Some authors generalise wildlife tourists as a type of ecotourist who possess an environmental ethic, who focus on intrinsic, rather than extrinsic motivation, express a biocentric rather than anthropocentric orientation, support the environmental conservation and strive for firsthand experience with the environment [53]. However, in most tourist populations one finds diverse attitudes, and the desire to see wildlife and concern for the environment may not necessarily be related. Rather, among the tourists in Serengeti we expect to find different degrees of environmental orientation (biocentrism-anthropocentrism).

An attitude toward the environment is a measure of how people would like to experience the landscape according to their personal preferences for environmental, social, and cultural aspects.

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These preferences reflect more basic values or environmental value orientations [54], and they are often related to attitudes toward specific environmental conditions and impacts as well as management and development options. An often used measure of environmental attitudes is the New Ecological Paradigm (NEP) scale [55, 56]. This scale contains items that reflect the so-called new ecological world view (NEW), assuming that humans are part of nature and must show care and consciousness in use of environmental resources. The scale also contains items tapping the Human Exemptionalism Paradigm (HEP), i.e. that humans are exempt from the laws of nature and rule over the physical world. Various studies in different cultures have documented that the NEP scale predicts pro-environmental behaviour, relates positively to education level, negatively to age, and that it possesses know-group validity [56].

In this study we examine how visitors to Serengeti perceive the environment of the Park and the way it is being managed. We also examine the effect of basic environmental value orientations on these perceptions. With a diverse group of visitors like one found in Serengeti, we expect that the degree of environmental orientation will vary from modest to relatively high. We also expect that the level of environmental orientation in some ways is related to perceptions and attitudes toward the environment and management of resources. The following research questions are addressed:

- How important are the different attractions of the area?
- What are the perceptions of tourists regarding the quality of the environment, management and visitor experience?
- How satisfied are the visitors with different aspects of the trip?
- Do environmental attitudes (degree of environmental orientation) affect levels of satisfaction?
- How likely are the respondents to revisit the park faced with potential future changes in the park environment?

Methods

Study area

Serengeti National Park, which covers 14 763 km^2, is located in the northern part of Tanzania (Figure 1). It lies in the west of the Rift Valley, in a highland savannah region with plains and woodlands ranging from 900 – 1500 meters above sea level. Its western part extends close to Lake Victoria. Its northern boundary follows the border between Tanzania and Kenya. It lies within the administrative regions of Mara, Mwanza, Shinyanga and Arusha. The location of this park makes it the cornerstone of the Serengeti ecosystem. It is surrounded by several protected areas: the Ngorongoro Conservation Area, four Game Reserves (Maswa, Ikorongo, Grumeti and Kijereshi), Loliondo Game Controlled Area (all in Tanzania) and Maasai Mara National Reserve in Kenya (Figure 1).

Serengeti National Park contains most of the animal species found in the East African savannah and is home to some of the largest populations of herbivores and carnivores in the World. The park is particularly famous for the large scale migrations of herbivores (wildebeest, zebra, Thomson's gazelle, and eland) directed by rainfall and available forage. But there are also large populations of resident herbivores (African buffalo, giraffe, kongoni, impala, Grant's gazelle, and others) as well as carnivores (lion, cheetah, hyena, and leopard) and a diversity of bird life [57].

Serengeti is the most developed of Tanzania's 15 national parks. It has the most elaborate network of roads and tracks, the highest number of ranger posts, the highest number of visitor facilities within the park, more park employees than other parks, and more visitors than any of the other national parks. Between 150 000 and 200 000 tourists visit Serengeti annually [58] leaving several million US dollars at the entrance gates. Almost all tourist activities are organised around game viewing, and the majority of visitors concentrate in the central Seronera valley and in the short grass plains in the southern parts of the park. Most visitors come to the park in the dry seasons, and the heaviest use occurs when the wildebeest migration is concentrated in the short grass plains.

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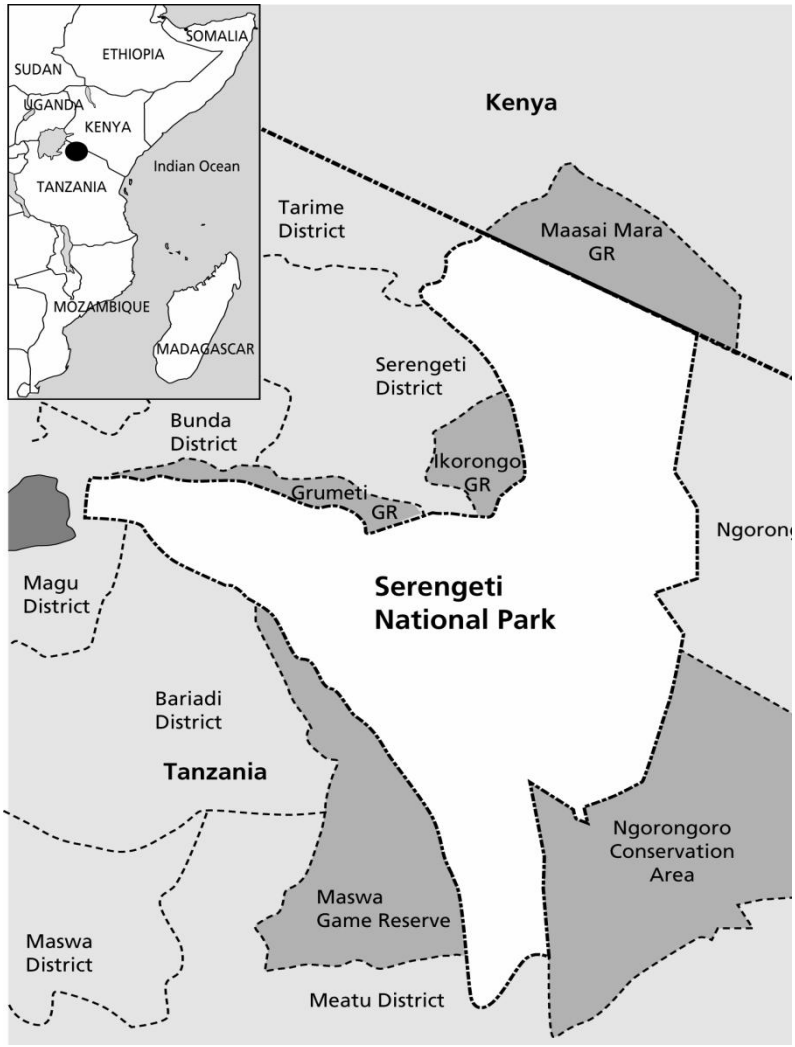


Fig. 1. Serengeti National Park and adjacent protected areas

Serengeti's exceptional resource values and supporting infrastructures have made it a world class icon receiving visitors from all over the world. The park is largely funded by entrance fees and donor support along with significant contribution from major international conservation organisations. Hence, Serengeti National Park is absolutely dependent on regular tourist flows and a strong international image as a high quality tourism destination. Maintaining a good image means upholding a high quality visitor environment in terms of landscape attributes, wildlife viewing, infrastructure and support services. Compared to many other wildlife parks in Africa, Serengeti enjoys an acclaimed position [59].

Serengeti has a 50 year long history of top-down management approach. As a flagship wildlife conservation area of the World, Serengeti started out as a game reserve in 1928, a development that was driven by colonial hunting interests. Along with the Ngorongoro Game Reserve that was gazetted at the same time, these areas infringed seriously on the rights of around 10 000 Maasai pastoralists [60]. In 1940, it was declared a national park but due to World War II it existed as a paper park. In 1959 the park was split into Serengeti National Park and the Ngorongoro Conservation Area. The latter, being a multiple use area, was adopted in order to accommodate the interests of the Maasai pastoralists in an attempt to address the human-wildlife conflicts that emerged as a consequence of conservation [61]. In 1981 Serengeti was inscribed as a World Heritage Site and Biosphere Reserve.

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The management of Serengeti National Park and several adjoining protected areas has been a history of conflicts and power struggles heavily influenced by international interests. However, the major impacts are being felt by the local populations [62, 63]. The large tracts of the East African savannah have been saved from agricultural and industrial expansion, rapidly growing settlements and overexploitation of natural resources.

Concern over Serengeti's future was voiced early. In a seminal work from 1959, pioneer researchers Bernhard and Michael Grzimek stated that the huge wildlife populations on the Serengeti plains were under threat from poaching and modern development and called for international action to protect this global showpiece of wildlife conservation [64]. Their ambition from 50 years back 'Serengeti shall not die', was re-examined by Kideghesho et al. [65], looking at the role of rapid human population growth, poverty, illegal hunting, habitat destruction, and wildlife diseases. Of these, human population growth and poverty are the most important underlying forces that potentially threaten the ecosystem, but they are not sufficiently addressed through current policies and management strategies. However, all of these five forces could have serious consequences for the visitor experience and tourism industry in the area.

Evidently, Serengeti is still highly attractive to the international visitors, but this cannot be a static situation. The future of Serengeti as a nature conservation area and tourist destination will to a great extent depend on how things are handled around the perimeter of the park, since over two million people now live along its borders. This includes the development of alternative sustainable livelihood strategies and reduction in the current level of ecologically destructive land uses. Experiences from Maasai Mara (the Kenyan part of the ecosystem) suggest the need for strict limits on land privatisation, commercial agriculture, and other development that conflicts with conservation in areas close to the park [65, 66].

Data collection

Data were collected by using a questionnaire addressing questions relating to trip characteristics, reasons for visiting Serengeti, perceptions of environmental attributes and management conditions, satisfaction with the trip, and willingness to return given major potential changes in management- and environmental conditions. This study was based on a convenience sample of international tourists to Serengeti National Park. Visitors to Serengeti have generally invested substantially in the trip and want to use their time well. In order to reach visitors in a situation and format that was amendable to paying attention to a survey we made agreements with the drivers/guides working for several safari companies. To the visitor, the driver is a trusted person on whom the tourist is totally dependent. The drivers of the well reputed tour companies are experienced and competent, and spend a great deal of time with their clients. As a trusted person, tourists are likely to comply with the wishes of the driver. Each driver was equipped with questionnaires in English, French and German. Since the tour routes and schedules vary somewhat, we requested the drivers to select an appropriate time for having their clients fill in the questionnaire. The drivers briefed the tourists on the purpose of the study. We made it a requirement that the questionnaire should be answered when the visitors had been in the park for some time; i.e. had time to gather impressions and experiences. Most of the questionnaires were filled in either during stops at the visitor centre in Seronera or at the southern Naabi Hill gate. At the latter, the safari vehicles always stop for some times before exiting the park. Ideally all respondents should have been contacted after having spent the same amount of time in the park, but this was not practically possible, A certain variation in exposure to the park is a potential source of error, but since everyone had spent a minimum of one-half of their visit in the park upon the time of completing the questionnaire we do not consider this a significant issue. The data collection was initiated at the early part of the high season commenced for about six weeks. This resulted in 350 completed questionnaires.

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Data Analysis

The data were entered and processed in SPSS (version 14.0). Ratings of attractions, perceptions and attitudes toward management and environment, satisfaction, and likely responses to changes was first analysed descriptively by frequencies and mean scores. The effects of environmental attitudes on environmental perceptions, attitudes toward management, and satisfaction were done with analysis of variance (ONEWAY ANOVA). We used an ecocentrism approach to measure environmental attitudes, and the eight items of the NEP scale are shown in Table 1. Items 2, 4, 6, and 8 were reversed during the analysis so that the sample could be ranked and split into three approximately equal size groups reflecting a low, medium and high degree of ecocentrism (Table 1). Reliability analysis showed that all items contributed to satisfactory scale consistency ($\alpha = 0.71$) [67].

RESULTS

Visitor characteristics

The sample of visitors comprised 45.8 per cent males and 54.2 per cent females. The mean age was 40 years. About ninety five per cent of the respondents visited Serengeti for the first time. On average, a visitor spends around two and half days in the park. Roughly one-half of the tourists (55.7 %) travelled in groups of up to four people, and the majority (84.6 %) travelled in groups of no more than 10 persons. The visitors represented a well educated segment of the population, with 83.1 % having completed university or college level education. The persons included in this study mostly came from USA (10.6 %) and various European countries: France (20 %), Italy (14.1 %), Netherlands (4.4%), United Kingdom (17.6%), Spain (7.4%), Germany (5.6%), as well as some from Australia and New Zealand (4.3%). The remaining 12 per cent of the sample came from 22 other countries spread across Europe, Asia, South America and Southern Africa.

Table 1. Items in the New Environmental Paradigm (NEP) scale and NEP groups.

	Mean	***SD***	***N***
The balance in nature is delicate and can easily be disturbed	3.8	0.64	157
Humans have the right to modify the natural environment so that it satisfies our needs	1.8	0.96	323
Humans abuse nature to a degree that is very serious	3.5	0.93	219
All the talk about the ecological crisis is heavily exaggerated	2.0	0.87	320
Animals and plants have the right as humans to live on this earth	3.5	0.96	151
The balance in nature is stable enough to tackle the pressure from the human society	2.0	0.8	321
If we continue on the same course as now we will soon experience an ecological catastrophe	3.5	0.82	230
The innovative nature of humans will ensure sustainable life conditions for humans in the future	3.0	0.93	309
Low ecocentrism			115
Medium ecocentrism			85
High ecocentrsim			108

Response format: 1: Strongly disagree – 5: Strongly agree

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Rating of attractions and satisfaction

The tourists were asked to respond to a series of statements relating to potential reasons for visiting Serengeti, and several were listed as important. Not surprisingly, it was the natural environment, and wildlife in particular, that was drawing people to Serengeti. The experience of wildlife in general (mean score for the entire sample) and encounters with large carnivores were on the average rated as very important reasons (Table 2). Both of these items were listed as 'very important' by more than 80 per cent of the sample. The savannah landscape, local culture, birdlife, doing something nice with family and friends, and not the least, see new places which were different from anywhere else the visitors had been before, ranked as important reasons for visiting Serengeti. Less important reasons included visiting archaeological sites and meeting new people, although these were not unimportant either. Slightly over 50 per cent reported these attributes of the trip as important or very important reasons.

Table 2. Reasons for visiting Serengeti.

	Mean	***F.***	***Sig.***	***N***
Wildlife in general	3.9	0.881	0.415	305
Large carnivores	3.8	0.037	0.963	301
Birdlife	3.1	0.806	0.448	298
The savannah landscape	3.5	8.041	0.000	300
The wildebeest migration	3.0	0.447	0.621	262
Wilderness and ecosystems	3.5	3.816	0.023	298
Archeological sites	2.6	2.304	0.102	279
Local culture	3.3	4.397	0.013	301
Get in touch with new people	2.7	0.774	0.462	291
Do something nice with friends or family	3.1	0.628	0.534	293
See new places that are different from anywhere else I have been	3.6	2.225	0.110	301

Response format: 1: Absolutely unimportant – 4: Very important

In general, the visitors included in this sample were quite satisfied with their trip to Serengeti for virtually all aspects mentioned in the survey (Table 3). The mean scores ranged between the satisfied and very satisfied. It was only the cost of the trip that rated a little lower. The wildlife experiences, the quality of the natural environment, and the tour guides scored the highest. About 76 per cent of the respondents were very satisfied with the wildlife, 67.1 per cent were very satisfied with the natural environment, and 73.5 per cent were very satisfied with the tour guides. The national park staff, the visitor centre, and the campsites and lodges also received high scores. We found a slightly larger spread in responses for the items 'the roads in the park', and 'the amount of people I met', but even here around three quarters of the sample were satisfied or very satisfied.

Attitudes toward environmental and managerial attributes

We also asked the tourists in this study to state their level of agreement with a series of statements pertaining to environmental, social and managerial attributes (Table 4). The perceptions were somewhat more positive for the environmental attributes (on the average) than they were to some of the managerial aspects and visitor conditions. The mean scores indicated that the visitors regarded Serengeti as a special and valuable place of global significance, and that it was seen as one of the best places in the World to experience wildlife. Over 90 per cent regarded Serengeti as different from any other place in the World, and as one of the best places to experience wildlife. Only around five per cent disagreed with this view.

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Table 3. Satisfaction with different aspects of the visit to Serengeti

	Mean	F.	Sig.	N
The experience of wildlife	3.7	1.956	0.143	303
The roads in the park	3.0	4.152	0.017	301
The amount of other people I met	3.0	0.510	0.601	259
The quality of the natural environment	3.6	2.712	0.068	295
The tour guides	3.7	0.511	0.601	295
The national park staff	3.5	1.321	0.269	225
Lodges	3.5	1.113	0.330	244
Campsites	3.2	0.435	0.648	122
The visitor centre	3.3	0.010	0.990	254
The cost of the trip	2.8	0.278	0.757	272

Response format: 1: Very dissatisfied – 4: Very satisfied

However, we did not identify quite the same desire or interest to experience local culture or archaeological sites. This is probably regarded as a moderately interesting aspect of the trip. On the average (mean score 3.3) the visitors thought that Serengeti National Park was really well managed. Actually, 96.3 per cent agreed with this statement. There was not much support for increasing facilities for tourists. Over 70 per cent disagreed or strongly disagreed with this intervention (mean score 2.2, Table 4). There was huge support for restricting tourism activities in parts of the national park in order to protect wildlife. About 70 per cent agreed or strongly agreed with this type of management action. On the average, the respondents felt that the information to visitors was adequate. About 90 percent agreed or strongly agreed on this. A significant majority of respondents (80.2 %) agreed or strongly agreed that the lodges had the right size and standard. While there might be some concern among the visitors that tourism should not expand too much, the sample of visitors in this study did not seem to think that the current level of tourism presents a major problem. On the statements, 'there are too many tourists in Serengeti', 'good wildlife sites are often overcrowded with tourists', and 'there are too many vehicles in Serengeti', the average scores were close to neutral, i.e. only a slight agreement with the statements was observed. Since these are average scores, there was a diversity of responses in the sample here. For instance on the issue of number of tourists, 50.3 per cent disagreed that there were too many tourists in the park, while 30.7 per cent agreed, and 10 per cent absolutely agreed. Roughly the same pattern was found for the perception of overcrowding at wildlife sites and the number of vehicles in the park.

Resilience to change

Major changes in the park environment could have effects on how attractive tourists find Serengeti (Table 5). Almost three quarters (73.8 %) of this sample report that they would not return to Serengeti if the wildlife populations were to be reduced by 50 per cent. An even higher portion (80.8 %) stated that they would not return if the number of tourists doubles. There was also considerable opposition against increasing the number of roads with one-half of the sample claiming they would not come back to the park if this happens. There was somewhat more support for raising the visitation fee, introducing a zoning system and regulating the tourist numbers. For all of these potential actions a clear majority had made up their mind for or against. The 'do not know' category was relatively small and ranged between 10 and 18 per cent (Table 5).

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Effects of environmental attitudes

Basic environmental attitudes as measured by the NEP scale do have an effect on some of the motives, and attitudes toward environmental and managerial attributes. When it came to reasons for visiting Serengeti, ecocentrism discriminated significantly for the items 'the savannah landscape', experiencing wilderness and ecosystems', and 'experiencing local culture'(Table 2). The low ecocentrics rated this significantly lower than the medium and high ecocentric groups. Low ecocentrics also rated 'wilderness and ecosystems' and 'local culture' as less important than the other two groups. For 'wilderness and ecosystems', low ecocentrics were significantly different from high ecocentrics (but not medium ecocentrics). For local culture, low ecocentrics were different from high ecocentrics, and the medium group was also different from the high group. For the question of satisfaction, we found significant effects of ecocentrism only for the question about the roads in the park. The low ecocentrics were less satisfied than the other two groups, whereas the medium and high ecocentrics were not statistically different from each other (Table 3).

Table 4. Perceptions of attributes of the Serengeti environment

	Mean	*F.*	*Sig.*	***N***
Serengeti is unique, different from any other place in the World	3.5	5.200	0.006	297
Serengeti must be one of the best places in the World to see wildlife	3.5	5.725	0.004	294
Serengeti is really well managed	3.3	0.389	0.678	243
There are too many tourists in Serengeti.	2.6	2.038	0.132	283
Facilities for tourists should be increased	2.2	3.253	0.040	292
Good wildlife sites are often overcrowded with tourists	2.7	1.385	0.252	293
I would like to experience more local culture and archeological sites	2.8	2.135	0.120	280
There are too many vehicles in Serengeti	2.6	1.443	0.238	287
The lodges have the right size and level of standard	3.2	0.020	0.606	245
The information to visitors is adequate	3.0	1.081	0.341	282
Tourism should be restricted in parts of Serengeti to protect the wildlife	2.9	8.458	0.000	273

Response format: 1: Strongly disagree – 4: Strongly agree

Ecocentrism had an effect on the attitudes toward Serengeti's uniqueness, its suitability for wildlife viewing, potentially increasing tourist facilities, and restricting tourist access to parts of the park (Table 4). The high ecocentric group to a greater extent rated Serengeti as a unique place, different from anywhere else in the World. The low ecocentrics were significantly different from the other two groups in their perception of this. The same pattern was found for the statement that 'Serengeti must be one of the best places in the World to see wildlife'. On the question of whether facilities for tourists should be increased, the low ecocentrics were more in favour of this than the other two groups, and the high ecocentrics were least in favour. The low and high ecocentrics were significantly different from each other in this question. The high ecocentrics were also more supportive of limiting tourist access to portions of the park than the other two groups. The low ecocentrics were significantly different from the medium and high ecocentrics in their attitude toward this statement (Table 4).

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Table 5. Likelihood of revisits to Serengeti given potential changes in the park environment (percentages)

	Yes	*No*	*Do not know*
The wildlife populations are reduced by 50 per cent	12.7	73.8	13.6
The numbers of tourists in the park double	8.4	80.8	10.8
A zoning system is introduced where you are only allowed to visit certain sections of the park .	47.4	38.8	13.8
The park fee is raised to USD 60 per day	39.0	43.2	17.8
The number of roads in the park is increased	36.0	51.1	13.0

Discussion

Serengeti National Park has retained its appeal to foreign tourists, and people from many corners of the world come here to experience the East African savannah and its abundant wildlife populations. Even in this convenience sample which probably is not fully representative of the visitor population in a strict statistical sense, we registered as many as 32 nationalities, most of them from outside Africa. The main reason for making a trip to Serengeti is to experience wildlife and natural scenery. Serengeti has built a strong international reputation as a flagship wildlife viewing site. There are probably no other protected area anywhere in the World based primarily on wildlife conservation, that has been portrayed as much in television productions, media and books. The respondents in this study confirm this impression placing very high emphasis on seeing wildlife. Encountering large, and spectacular carnivores is rated higher than seeing the annual wildebeest migration, although the latter really being the 'trade mark' of Serengeti. There is interest in local culture, but less so in cultural landscape attributes like archaeological sites. A closer examination across, for instance nationalities, age groups or levels of previous experience with protected areas, might have revealed more detail and diversity in motives. However, this was not feasible in our limited sample.

Visitors included in this sample expressed a high level of satisfaction with most aspects of the trip. Understandably, they were least satisfied with the cost of the trip. A high degree of satisfaction with other elements like the abundance of wildlife, the natural environment in general and visitor density can both be an expression of genuine satisfaction with the experience, and a reluctance to admit having invested money into a product not meeting expectations. However, the uniformly high degree of satisfaction with all elements of the tourist package, environment, logistics, and management situation suggest a high quality experience for most of the visitors. However, these are general measures that could conceal important details.

Our findings are partly supported by other research from the Northern Tourist Circuit in Tanzania. Here it was also found that wildlife viewing was the main attraction. Most visitors were not influenced to visit the region by indigenous culture or physical features, but a large majority reported that non-wildlife attractions enhanced their tourist experience. Satisfaction levels were also high with a high level of interest for repeat visits [68]. In contrast, another tourism study from Serengeti reported significant negative service and safety gaps, especially related to campsites, toilet facilities and littering [59]. Research comparing Serengeti with other Tanzanian national parks suggest that various service gaps may be a common problem [69].

As is often the case in tourism studies, the visitors are quite content with the current conditions, they do not perceive much environmental impact from their own level of activity, but they are concerned about future changes [12]. In this sample, the visitors oppose the proposition that there are too many tourists in Serengeti today or that the popular wildlife sites are overcrowded.

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However, there is more support for restricting access to certain parts of the park for the purposes of protecting wildlife, and there is little support for increasing tourism facilities (mean scores for the entire sample).

The use of the New Environmental Paradigm (NEP) scale shows that it is possible to identify ecocentrism-anthropocentrism as a concept and gradient across a highly diverse visitor population. It supports the idea that more basic environmental attitudes can be compared across different cultures and settings [70]. In this study we found effects of an ecocentric orientation on some, but not all the issues examined. A higher degree of ecocentrism was associated with a stronger interest in experiencing nature in general, interest in wilderness and ecosystems and local culture. A higher degree of ecocentrism was also associated with more support for controlling tourism activities and the development of tourism infrastructure. We interpret these results to be in line with our assumptions, namely that visitors to Serengeti expressing a high degree of environmental orientation are also more interested in experiencing nature and ecosystems, and they are more concerned about human impacts on the environment. This is expressed as opposition to future tourism infrastructure development and support for controlling access to parts of the national park.

Although we are careful not to draw firm conclusions based on a limited sample of tourists and relatively few measures, it appears that the visitors to Serengeti perceive this area as a well managed national park with good opportunities for encountering magnificent wildlife and landscapes. It is perceived as an environment capable of producing high quality nature tourism experiences. From a tourism perspective, Grzimek's vision some 50 years ago: "Serengeti shall not die" [64] still probably holds. Serengeti's environment has certainly been set under pressure since that time, but visitors do not necessarily perceive the changes or gain any understanding of the impact factors during a brief visit to the park.

One of the main concerns of Grzimek was poaching and this activity has increased considerably since that time [71, 72]. Other major impact factors identified by Kideghesho et al. [65] also affect Serengeti. Wildlife diseases have at times reduced wildlife populations and probably changed the balance between species and populations. For instance, historical rinderpest outbreaks nearly wiped out the wildebeest population, but disappeared from Serengeti after the early 1960's, thanks to vaccination campaigns [73]. Since large numbers of domestic animals such as dogs, cattle and goats belonging to agro-pastoralists settled around the perimeter of the park regularly come in contact with wildlife, potential diseases is always an issue with the local communities. There is also concern over zoonotic diseases, i.e. diseases that are transmitted between wildlife and people such as rabies, foot and mouth diseases and anthrax. If this happens tourism will be quickly and strongly impacted.

Habitat changes have indeed occurred during the lifespan of the park, the borders have changed somewhat, roads and other infrastructure have increased, there is some mining inside the park, livestock grazing occurs in many places within the park, and fires are regularly set by humans affecting the vegetation [65]. However, the most radical change during the history of the park is the increase in population pressure from the surrounding communities. Currently over 2 million people live around the perimeter of the park. In the northwest areas, the annual population increase is between 3 – 4 per cent [74]. Censuses also show great ethnic diversity in most communities due to transmigration. Apparently, the Park attracts people from a range of regions, and they settle on the borders of the park in hope of obtaining better living conditions [75]. Yet, resources and social services are limited and poverty is widespread. The high level of poaching and numerous conflicts over grazing areas and water is driven by the population increase in the areas adjacent to the park [65, 72, 76, 77]. All these factors affect the Serengeti environment, and they pose formidable management challenges.

However, the visitors to Serengeti only spend a minimal amount of time in the park, and they mostly encounter a vast environment with limited visible impacts. For example, no local communities other than park staff facilities exist inside the park, and most of the tourist access routes avoid going

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through local communities. Poaching, while potentially detrimental to wildlife populations, is rarely or never experienced by tourists. Tourists may be exposed to poverty when they go through major towns in Tanzania and occasionally en route to the protected areas, but the stay in Serengeti is kept far apart from the rural realities of Tanzania.

The positive image of Serengeti is vulnerable and could be affected by these impact factors. The park has been contested by its neighbours throughout its existence [78, 79] and poverty could take its toll on the park in different ways. For example, poor people are compelled to pursue economic options that are ecologically damaging, both as a coping and adaptive livelihood strategies [65, 72]. Benefits from tourism are generally not well distributed to communities, a condition which has also been identified for Serengeti [80].







Fig. 2 Tourism in Serengeti is centered around wildlife

Implications for conservation

Findings from this study show that visitors to Serengeti comprise a heterogeneous group of people with diverse attitudes towards environmental management and conservation issues. Visitors with a stronger ecocentric perspective are more likely to support conservation and be more opposed to exploitive and consumptive resource use. They are also likely to be more receptive to information aimed at influencing visitor behaviour in environmentally friendly directions. Major changes in the visitor environment such as large reductions in the number of wildlife or major increases in visitor numbers may reduce the desire of tourists to return to this destination, and consequently weaken the financial base of the park. Future management strategies will to a great extent depend on a high portion of highly satisfied visitors in terms of maintaining its international image of an attractive destination (Fig. 2). Typical problems of protected areas in the South including those in Tanzania are lack of infrastructure, insufficient numbers of trained staff, and weak legal and regulatory frameworks [69]. While Serengeti currently appears as a high quality and well managed tourist destination, the resilience to change is unknown, and support from the tourism sector is vital. Future

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Serengeti tourism must build on sustainable policies and practices [81], including subjecting tourism development to environmental impacts assessments. High environmental standards are also important in the context of regional competition. Serengeti competes with several other national parks in the region, such as the adjoining Maasai Mara National Reserve just across the Kenyan border. Entrance fee policies, the way communities are involved and handled [82], wildlife policies, and the proficiency of guides and tour operators are typical factors affecting the tourist experience. Serengeti enjoys a legacy as a supreme wildlife tourism destination, but it will require conscious efforts to retain that status in the future global nature tourism market.

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