Wildlife Viewing Preferences of Visitors to Protected Areas in South Africa: Implications for the Role of Ecotourism in Conservation

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Ecotourism has a potentially vital role to play in conservation by generating economic incentives for nature conservation. However, some authors contend that this potential may be limited by narrow viewing preferences among visitors to protected areas, suggesting that most tourists are primarily interested in seeing charismatic mega-fauna largely confined to government or privately-owned parks. We assessed viewing preferences among tourists at four protected areas in South Africa to test the validity of this contention. Mega-herbivores and large carnivores were the most popular species, particularly among first-time and overseas visitors, but African visitors and experienced wildlife viewers were more interested in bird and plant diversity, scenery, and rarer, less easily-observed and/or less high-profile mammals. Several of these favored species are extinction prone and often absent from wildlife areas due to sensitivity to human encroachment and competition with more abundant species. Hence, ecotourism may provide incentives for the conservation of intact guilds, and management for ecotourism may align more closely with biodiversity conservation objectives than suggested by critics. This potential could be enhanced by diversification of tour operator advertising to feature aspects of biodiversity other than the 'big five'. Nonetheless, charismatic mega-fauna have a vital flagship role by attracting most overseas and first-time visitors to protected areas.

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Introduction

Ecotourism has been heralded as a potentially effective means of redistributing wealth from developed to developing nations and for generating funds for conservation (Gössling, 1999). According to the South African Department of Environmental Affairs and Tourism (1996), ecotourism is defined as 'environmentally and socially responsible travel to natural or near natural areas that promotes conservation, has low visitor impact and provides for beneficially active socio-economic involvement of local people'.

Tourism is the fastest growing industry in the world, and ecotourism is the fastest growing component of that industry (Gössling, 2000). There is particularly great scope for development of ecotourism in Africa, by virtue of the enormous diversity of habitats and wildlife species found there, including an abundance of large, charismatic species. Correspondingly, tourism is predicted to grow considerably faster in Africa than in the rest of the world (Christie & Crompton, 2001). Revenues from ecotourism are also arguably most needed in Africa: Africa's protected area network does not adequately conserve biodiversity, leaving many ecosystems and species unrepresented (Fjeldsa *et al.*, 2004). Furthermore, many protected areas are under funded and exist merely as 'paper parks' (Wilkie & Carpenter, 1999).

Some protected areas in Africa presently do generate significant revenues from ecotourism which play an important role in funding conservation. Kruger National Park in South Africa for example, receives over 1 million visitors annually (Lindsey *et al.*, 2005a), and the Serengeti National Park and Ngorongoro Conservation areas in Tanzania generate an estimated 5.2 and 5.9 million USD annually (Thirgood *et al.*, 2006). Outside of parks, ecotourism is a vital component of community conservation efforts in some African countries (Walpole & Thouless, 2005), and revenues from ecotourism are partly responsible for the development of wildlife as a major land use on private land southern Africa (Hearne & Mackenzie, 2000).

There are, however, a number of limitations to the role of ecotourism in conservation, and there are surprisingly few examples of protected areas in Africa where tourism revenues cover costs, and even fewer examples of successful community-run tourism operations (Walpole and Thouless, 2005). Limitations include the dependency of ecotourism on good infrastructure and political stability, the disturbance of sensitive species by tourists, and environmental impacts caused by the mass transport and development associated with high volume tourism (Moran, 1994; Gössling, 2000). In the case of community tourism projects, benefits accruing to conservation are limited by shortages of capital and skills, low profitability, and the difficulty associated with ensuring appropriate revenue distribution (Kiss, 2004; Leader-Williams & Hutton, 2005).

Several authors have identified narrow tourist interests as a potentially serious additional limitation to the role of ecotourism in conservation. Kerley *et al.* (2003), for example, suggested tourist preferences for charismatic mega-fauna lead to an under appreciation of biodiversity. Goodwin and Leader-Williams (2000) suggest that the dependence of tourism operations on charismatic mega-fauna may distort management priorities to the detriment

of wider biodiversity conservation. Wilkie and Carpenter (1999) assessed the potential for ecotourism to generate revenues for protected areas in Central Africa, and contends that areas lacking charismatic mega-fauna have poor prospects of generating adequate revenues to cover operating costs.

Deserts, forests and mountains generally derive fewer benefits from tourism than savanna habitats, partly due to the relative difficulty of viewing large mammals in these habitats (Goodwin & Leader-Williams, 2000; Kiss, 2004; Wilkie & Carpenter, 1999). Narrow tourist interests represent a particularly severe limit to community-based ecotourism as most communally owned areas are unable to match national parks in wildlife abundance or diversity, limiting the extent to which they can compete for a limited tourist market (Walpole & Thouless, 2005).

In Africa, narrow viewing preferences may be exacerbated by the perceived importance of the so-called 'big five' to the success of tourism operations (Goodwin & Leader-Williams, 2000). The species which constitute the 'big five': elephants (*Loxodonta africana*), buffalo (*Syncerus cafer*), rhinos (*Ceratotherium simum*) and (*Diceros bicornis*), lions (*Panthera leo*) and leopards (*Panthera pardus*) are the most popular species among tourists, and yet these are likely to be the species which are expensive to conserve, either because they cause damage to human livelihoods (e.g. elephants, leopards, lions) or are targets for poaching and require expensive anti-poaching operations (e.g. rhinos). This expense limits the extent to which they can be successfully conserved outside of government protected areas and limits the scope for ecotourism to contribute to overall biodiversity conservation, particularly in community conservation areas.

In this study, we assess viewing preferences among visitors to South African protected areas as a means of determining the extent to which tourists are interested in experiencing components of biodiversity other than charismatic mega-fauna such as the big five. We attempt to identify the components of the tourist market most interested in experiencing alternative components of biodiversity and discuss our findings in terms of the potential role of ecotourism in conservation in Africa.

Methods

A structured questionnaire was designed to determine tourist preferences in four protected areas in South Africa, to capture preference data from low and high budget visitors (Table 1). A pilot survey was conducted at Pilanesberg National Park (hereafter 'Pilanesberg'), a public reserve in the North West Province of South Africa to ensure that the questions were clearly understandable, logically ordered, and that the questionnaire was of a suitable length. Sampling was then carried out in 2001, at Pilanesberg and another public reserve, Kruger National Park (in the Mpumalanga/Limpopo Province; hereafter 'Kruger') to permit sampling of low to medium-budget tourists, and at two private nature reserves, Djuma Game Reserve (Mpumalanga Province; hereafter 'Djuma') and Ngala Game Reserve (Limpopo Province; hereafter 'Ngala') to enable sampling of high-budget tourists. Interview sampling was used at Kruger and Pilanesberg by the first author and two

Table 1 Summary of questions used in interview survey

Questions	*Answer options*					
What is the duration of your stay at this reserve?	Open ended					
How many days have you stayed at this reserve so far?	Open ended					
How many trips have you made to African game parks/ protected areas in the last five years, prior to this visit?	Open ended					
Please indicate which of the following you have seen on this trip:						
African wild dog	Yes		No		Not sure	
Cheetah	Yes		No		Not sure	
Leopard	Yes		No		Not sure	
Lion	Yes		No		Not sure	
Hyaena spp.	Yes		No		Not sure	
Please give each of the following species a score of 0–5 in terms of the desire you have to see each on this trip	(0 = no desire, 5 = great desire)					
African wild dog (*Lycaon pictus*)	0	1	2	3	4	5
Buffalo (*Syncerus caffer*)	0	1	2	3	4	5
Cheetah (*Acinonyx jubatus*)	0	1	2	3	4	5
Elephant (*Loxodonta africana*)	0	1	2	3	4	5
Giraffe (*Giraffa camelopardalis*)	0	1	2	3	4	5
Hippopotamus (*Hippopotamus amphibius*)	0	1	2	3	4	5
Hyena spp. (*Crocuta crocuta*/*Hyaena brunnea*)						
Impala (*Aepyceros melampus*)	0	1	2	3	4	5
Kudu (*Tragelaphus strepsiceros*)	0	1	2	3	4	5
Leopard (*Panthera pardus*)	0	1	2	3	4	5
Lion (*Panthera leo*)	0	1	2	3	4	5
Rhino (*Diceros bicornis*/*Ceratotherium simum*)	0	1	2	3	4	5
Sable (*Hippotragus niger*)	0	1	2	3	4	5
Wildebeest (*Connochaetes taurinus*)	0	1	2	3	4	5
Zebra (*Equinus burchelli*)	0	1	2	3	4	5
Please give each of the following reserve characteristics a score of 0–5 in terms of how important they are to you on a trip to a wildlife area	(0 = of no importance, 5 = highly important)					
Attractive scenery	0	1	2	3	4	5
High bird diversity	0	1	2	3	4	5
High mammal diversity	0	1	2	3	4	5

(*Continued*)

Table 1 *Continued*

Questions	*Answer options*					
High floral diversity	0	1	2	3	4	5
The 'big five'	0	1	2	3	4	5
Large predators	0	1	2	3	4	5
Have you ever seen wild dogs in the wild on previous trips to protected areas?*	Yes			No		
Prior to completing this questionnaire, were you aware that African wild dogs are endangered?*	Yes			No		
Gender	Open ended					
Age	Open ended					
What is your level of education?	Open ended					
What is your nationality?	Open ended					

*Included as part of a more detailed study on the potential role of ecotourism in wild dog conservation

trained assistants. Interviews were limited to one per couple or family group. At Pilanesberg, sampling was stratified between camps and restaurants to obtain coverage of all market segments. In Kruger, sampling was done at Skukuza, the largest rest camp, and at neighbouring picnic sites, providing coverage of visitors based at camps throughout the park. Refusal rate was 4.6%. At the high-budget lodges, interview sampling was not permitted and so questionnaires were distributed to guests by lodge staff to complete during their stay. One questionnaire was placed in each room, and guests returned the completed questionnaires to lodge staff on departure.

Statistical Analyses

We investigated the relationships between tourist preferences and respondent characteristics using multivariate logistic regression (Cox, 1970). Scores given by respondents to natural features and wildlife species (Table 1) were categorised as 'indifferent' (scores 0–3), or 'interested' (scores 4–5) to permit multivariate logistic regression. This binary dependent variable was analysed relative to respondent age (three categories <30, 31–50, >50), education (with or without tertiary education), nationality (African or non-African), wildlife area type (high-or low-budget), and the number of trips made to parks in the last five years (continuous variable). We acknowledge that due to the unavoidable differences in sampling method (interviews versus self-completed questionnaires), variation in preferences among high and low budget tourists must be treated with some caution. For carnivores, we included an additional term: whether or not each species had been seen during the current trip, and for wild dogs *Lycaon pictus*, we included two additional terms: whether or not respondents were aware of the species' endangered status, and whether respondents had ever seen the species before. Model selection was done by including all terms in the model for each species

(or natural attraction) and then removing the variable with the least effect, in a stepwise fashion, until all remaining terms in the model were statistically significant.

Results

We obtained a total of 627 completed questionnaires, 441 interviews (Pilanesberg $n = 238$, Kruger $n = 203$) and 186 visitor-filled questionnaires (Djuma $n = 77$, Ngala $n = 109$). Approximately half (51.1%) of all tourists sampled were African and the majority of respondents had tertiary education (77.5%, Table 2). Thirty percent (30.2%) of respondents had never visited wildlife areas in Africa before, 36.1% had visited one to five times during the preceding five years, and 33.7% had been to wildlife areas more than five times during the last five years (Figure 1).

High mammal diversity is the most important feature of a protected area among tourists, followed by the presence of large predators (Figure 2). Details of the multivariate analyses are presented in Table 3. The 'big five', mammals and predators (three overlapping categories) were more important to non African tourists (by 1.16–1.56 times), whereas birds, plants and scenery were more important to Africans (by 1.14–3.13 times). Bird and plant life were also more popular among more experienced visitors to protected areas and among older guests. Low-budget guests were more interested in birds, plants and scenery (by 1.07–1.54 times), whereas high budget guests were more interested in the big-five, mammals and predators (by 1.03–2.8 times). There were no significant relationships between the age or education level of respondents and no interactions among preferences for various reserve features and respondent characteristics.

There was significant variation in tourists' preferences for viewing particular mammalian species (Figure 3). Leopards, followed by lions, rhinos and cheetahs *Acinonyx jubatus* were the most sought after species, whereas impala *Aepyceros melampus*, kudu *Tragelaphus strepsiceros*, wildebeest *Connochaetes taurinus* and zebra *Equus burchelli* were the least sought after

Table 2 Respondent characteristics

Respondent characteristics	**%**
Age	
<30	19.7
31–50	54.2
>50	26.1
Education	
With tertiary education	22.5
Without tertiary education	77.5
Nationality	
African	51.1
Non-African	49.9

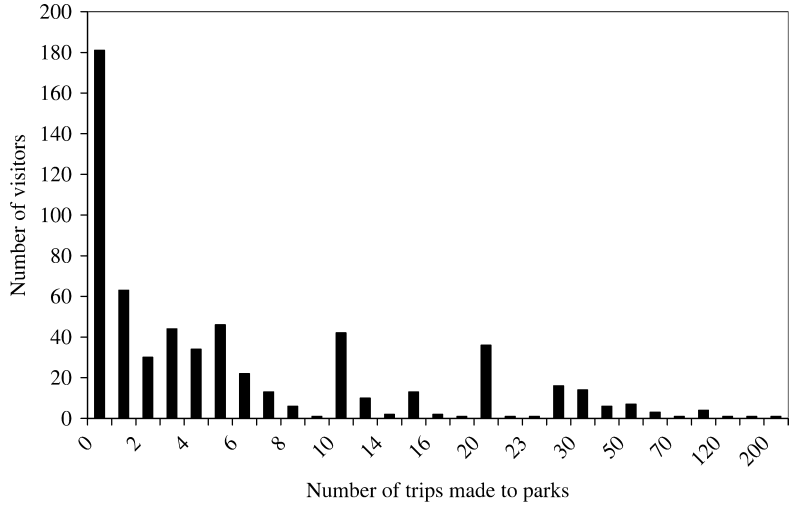

Figure 1 Number of visits by respondents to protected areas during the last five years

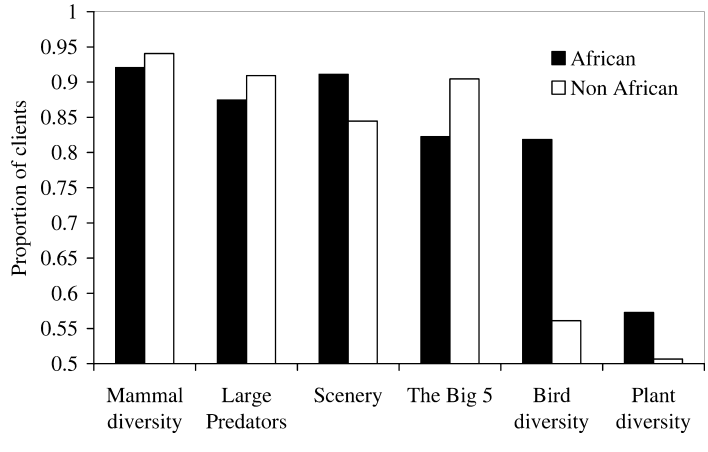

Figure 2 Proportion of visitors identifying each of various features of protected areas as being important to them (denoting scores of 4 or 5 on a 0–5 scale)

($\chi^2 = 3118$, d.f. $= 15$, $p < 0.01$). Non-African visitors rated elephants *Loxodonta africana*, giraffes *Giraffa camelopardalis*, hippos *Hippopotamus amphibius*, impalas, leopards, lions, rhinos, wildebeest and zebras more highly, whereas African guests were more interested in buffalo, cheetahs, hyenas *Crocuta crocuta*/ *Hyaena brunnea*, sable antelope *Hippotragus niger* and wild dogs (Figure 3, Table 4). Experienced wildlife viewers rated buffalo, cheetahs, sable antelope, and wild dogs highly, whereas inexperienced wildlife viewers were more interested in seeing giraffes, hippos, impalas, lions, rhinos and zebras (Figure 4). Viewing preferences also varied with lodge type, respondent age and

Table 3 The relationship between the popularity of features of protected areas and respondent characteristics expressed in odds ratios[1] (statistically significant relationships (≤ 0.05) underlined)[2]

Feature	*Model*	*African?*		*Trips to parks*	*Respondent age*			*Lodge price*	
		Yes	*No*		*<30*	*31–50*	*>50*	*High*	*Low*
Birds	$\underline{\chi^2 = 88.2;\ p < 0.01}$	1	<u>0.32</u>	0.003	1	<u>3.80</u>	1.81	1	1.07
Big 5	$\chi^2 = 7.13;\ p = 0.21$	1	1.56	3.59	1	1.00	0.72	1	0.80
Mammals	$\underline{\chi^2 = 11.3;\ p = 0.04}$	1	1.16	2.09	1	1.47	0.30	<u>1</u>	<u>0.36</u>
Plants	$\underline{\chi^2 = 22.5;\ p < 0.01}$	1	0.88	<u>0.03</u>	1	<u>1.67</u>	1.42	1	1.27
Predators	$\chi^2 = 4.24;\ p = 0.51$	1	1.29	2.81	1	0.94	0.55	1	0.97
Scenery	$\underline{\chi^2 = 23.8;\ p < 0.01}$	1	0.57	<u>0.0004</u>	1	0.99	0.59	1	1.54

[1]Odds of visitor in each category being interested in each feature relative to the reference category – e.g. the odds of a non-African being interested relative to an African.
[2]Underlined values represent those obtained from the minimum adequate model – i.e. with statistically insignificant variables removed (odds ratios for non-significant variables are included for illustrative purposes).

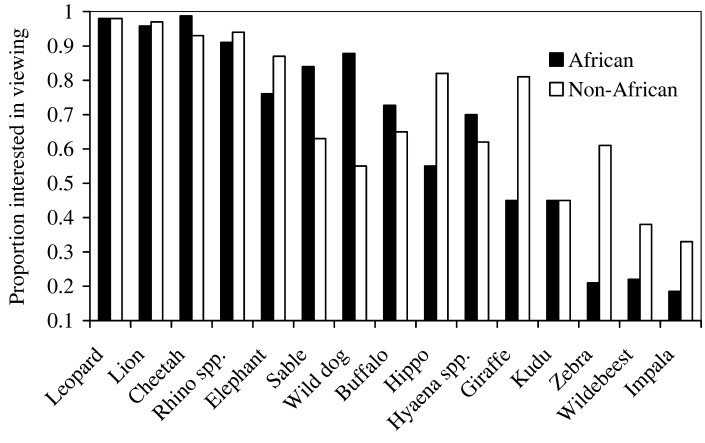

Figure 3 Proportion of African and non-African tourists expressing high levels of interest (denoting scores of 4 or 5 on a 0–5 scale) in viewing various wildlife species

whether or not respondents had tertiary education (Table 4). There were no statistically significant interactions among the popularity of various wildlife species, and the variables listed in Table 4, except for an interaction between the popularity of giraffes, tourist age and whether or not they were African ($\chi^2 = 7.36$, d.f. $= 2$, $p = 0.02$). Despite variation in their popularity with respondent characteristics, several species (namely the big cats, elephants and rhinos) were generally popular among all types of visitors (Figure 3).

Respondents who were not aware of the endangered status of wild dogs (32.8% of respondents) were less than half as likely (odds ratio 0.46) to be interested in viewing wild dogs as visitors who were aware. Whether respondents had ever seen wild dogs before in the wild had no effect upon the popularity of this species among tourists. Approximately 7% (7.2%) of respondents indicated that the presence of wild dogs influenced their decision to visit the reserve at which they were staying.

There was no relationship between the popularity of each carnivore species and whether that species had been seen by respondents on the current visit, despite the fact that some species, notably *hyaena* spp. (seen by 56.5% of respondents) and lions (50.5%) were seen considerably more frequently than others - leopards (33.8%), wild dogs (18.1%) and cheetahs (17.2%, $\chi^2 = 301.4$, d.f. $= 4$, $p < 0.01$).

Discussion

The results of this study confirm the importance of large, charismatic mammals as flagships responsible for attracting most tourists to protected areas. However, our data indicate that tourist preferences are not limited to such species, and that ecotourism may have greater potential to create incentives for conservation across a wider range of scenarios than feared by some.

Table 4 The relationship between the popularity of various wildlife species and several respondent characteristics expressed in odds ratios[1] [statistically significant relationships (≤0.05) underlined[2]]

Species	*Model*	*African?*		*Trips to parks*	*Respondent age*			*Lodge price*		*Tertiary education*	
		Yes	*No*		*<30*	*31–50*	*>30*	*High*	*Low*	*Yes*	*No*
Buffalo	$\underline{\chi^2 = 20.9; p < 0.01}$	1	0.90	$\underline{0.001}$	1	$\underline{0.67}$	$\underline{1.86}$	1	0.95	1	1.14
Cheetah	$\underline{\chi^2 = 12.5; p < 0.01}$	1	$\underline{0.18}$	0.04	1	0.58	3.40	1	0.93	1	0.64
Elephant	$\underline{\chi^2 = 31.5; p < 0.01}$	1	$\underline{1.75}$	1.78	1	1.23	1.08	1	$\underline{0.29}$	1	0.83
Giraffe	$\underline{\chi^2 = 96.7; p < 0.01}$	1	$\underline{4.87}$	7.39	1	$\underline{1.10}$	$\underline{1.90}$	1	$\underline{0.60}$	1	1.0
Hippo	$\underline{\chi^2 = 76.4; p < 0.01}$	1	$\underline{2.77}$	$\underline{165}$	1	1.17	1.57	1	$\underline{0.59}$	1	0.74
Hyaenas	$\underline{\chi^2 = 4.93; p = 0.03}$	1	$\underline{0.67}$	0.22	1	1.10	1.07	1	0.80	1	1.28
Impala	$\underline{\chi^2 = 47.4; p < 0.01}$	1	$\underline{1.92}$	4.90	1	$\underline{0.45}$	$\underline{0.91}$	1	$\underline{0.41}$	1	$\underline{1.59}$
Kudu	$\underline{\chi^2 = 7.48; p = 0.02}$	1	1.03	0.66	1	$\underline{0.53}$	$\underline{0.70}$	1	0.71	1	1.45
Leopard	$\underline{\chi^2 = 7.24; p = 0.03}$	1	1.94	0.95	1	0.72	1.25	1	$\underline{3.92}$	1	$\underline{0.34}$
Lion	$\underline{\chi^2 = 6.78; p < 0.01}$	1	3.29	$\underline{59.0}$	1	1.46	1.09	1	0.49	1	2.06
Rhino spp.	$\chi^2 = 10.1; p = 0.12$	1	1.52	6.48	1	2.15	1.19	1	0.91	1	2.45
Sable	$\underline{\chi^2 = 74.1; p < 0.01}$	1	$\underline{0.61}$	$\underline{4.0e^{-8}}$	1	$\underline{0.33}$	$\underline{1.09}$	1	$\underline{1.72}$	1	1.29
Wildebeest	$\underline{\chi^2 = 22.5; p < 0.01}$	1	$\underline{2.39}$	2.32	1	0.58	1.07	1	0.73	1	1.19
Wild dog	$\underline{\chi^2 = 123; p < 0.01}$	1	$\underline{0.39}$	$\underline{7.6e^{-8}}$	1	0.69	1.62	1	0.91	1	1.17
Zebra	$\underline{\chi^2 = 108; p < 0.01}$	1	$\underline{5.32}$	2.56	1	1.29	1.02	1	$\underline{0.59}$	1	0.98

[1]Odds of visitor in each category being interested in viewing each species relative to the reference category – e.g. the odds of a non-African being interested relative to an African.
[2]Underlined values represent those obtained from the minimum adequate model – i.e. with statistically insignificant variables removed (odds ratios for non-significant variables are included for illustrative purposes).

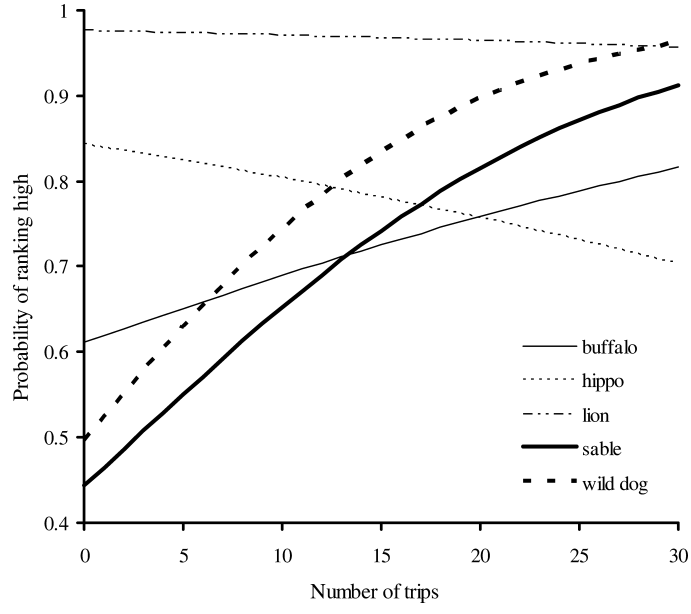

Figure 4 Logistic regression models relating the popularity of wildlife species and the number of trips made by respondents to protected areas during the last five years. Full details of the analyses are given in Table 2

Mammalian diversity, large predators and mega-herbivores constitute the component of protected areas that are most important to tourists of all nationalities, budgets and experience, in keeping with the findings of several other authors (Goodwin & Leader-Williams, 2000; Kerley *et al.*, 2003; Walpole & Leader-Williams, 2002). Specifically, leopards, lions, rhinos, cheetahs and elephants constitute the most popular species among visitors to wildlife areas and are generally popular among all types of visitors. Bias in public opinion in favour of such species could undermine the role of ecotourism in biodiversity conservation by preventing areas without such species from benefiting (Kerley *et al.*, 2003) and by skewing the distribution of donor funding towards areas that contain them (Czech *et al.*, 1998).

However, our findings indicate that tourist viewing preferences are diverse with marked variation in the preferences of different market segments. While overseas and inexperienced visitors to protected areas are interested primarily in large predators and mega-herbivores, local Africans, experienced wildlife viewers (including those from overseas) and in some cases, older guests tend to show a greater interest in bird and plant diversity, scenery, and rarer, less easily-observed and/or less high-profile mammal species, such as sable antelope, hyenas, cheetahs and wild dogs. In keeping with these findings, Fredline and Faulkner (2001) suggest that while first time visitors to Australia are most interested in viewing iconic species such as koalas *Phascolarctos cinereus* and kangaroos *Dipodomys* spp., return visitors have broader viewing preferences.

Local visitors and experienced wildlife viewers make up a significant tourist market in South Africa. Of the 1.3 million tourists visiting Kruger National Park annually, 73% are South African (http://www.southafrica.info/plan_trip/holiday/local-tourism-150805.htm), and 34% of respondents in our study had visited wildlife areas more than five times during the past five years. This market is likely to increase over time: rapid growth in the tourism industry means that many visitors to protected areas are newcomers to wildlife viewing. As they become more experienced, the demand for more specialised wildlife viewing should increase. Ecotourism thus has the potential to provide a powerful economic incentive for biodiversity conservation beyond the most famous charismatic mega-fauna. In keeping with this finding, Huntley *et al.* (2005) found considerable interest in viewing invertebrates among visitors to Hluhluwe-iMfolozi Park in South Africa. This finding has two potentially important implications for the role of ecotourism in conservation:

First, there may be an economic incentive to manage for intact guilds, at least for large ungulates and large carnivores. Hence, the aims of ecotourism may align more closely with the aims of biodiversity conservation than feared by some. Wildlife areas are likely to appeal to a broader spectrum of tourists given the presence of attractive plant life, high bird diversity and rare and endangered species (such as sable and wild dogs) than an area which relies solely upon species familiar to overseas visitors (such as lions and elephants). This is important because several of the species favoured by African tourists and experienced visitors to wildlife areas are extinction prone and often require specific conservation intervention. For example, wild dogs and cheetahs are persecuted by game ranchers due to a perception that they cause costs and have no economic value (Lindsey *et al.*, 2005b). Our findings contrast with this belief, suggesting that these species may have substantial ecotourism value, supporting the findings of Lindsey *et al.* (2005a) who showed that financial benefits from ecotourism should exceed the costs of conserving wild dogs under most scenarios.

These findings suggest that managers at tourism destinations should manage for intact guilds and for species diversity. Kruger provides an example of where this kind of management could be applied to maximise the appeal of the area to tourists. Artificial water points were constructed in the park during 1970–1994 to increase wildlife densities, resulting in increases in zebra and wildebeest numbers, and a consequent population crash and near extinction of roan antelope *Hippotragus equines* and sable antelope (Harrington *et al.*, 1999). This may also have caused the demise of the brown hyaena *Hyaena brunnea* through competition with increased numbers of spotted hyaenas *Crocuta crocuta* (Mills & Funston, 2003). Our results suggest that management in Kruger to increase numbers of the rarer antelopes and carnivores would attract more tourists by appealing to a broader subset of the tourist market. Similar logic applies to the debate surrounding 'elephants versus biodiversity' (van Aarde *et al.*, 1999), suggesting that it would not pay in ecotourism terms for park managers to conserve high densities of elephants at the expense of biodiversity.

A second implication of our findings is that state protected areas, private reserves or community wildlife areas may have potential to derive ecotourism

benefits in the absence of some of the charismatic megafauna that appeal to mass-market tourists. Community based ecotourism ventures in Africa rarely compete with the wildlife viewing opportunities in government or privately owned protected areas, and reliance on the same market sector as these areas is a primary reason behind the lack of successful community ecotourism operations (Walpole & Thouless, 2005). Failure to involve and benefit local communities is a key limitation to the conservation role of ecotourism in Africa, and the South African White Paper for Tourism Development (South African Department of Environmental Affairs and Tourism, 1996) identified improved community involvement as a key prerequisite for the successful and sustainable development of tourism in South Africa. Our findings suggest that resort managers in community areas should consider marketing their product specifically to local and more experienced tourists. An example of where this may apply is in the Laikipia District of Kenya where some community areas have spectacular scenery and high bird diversity in addition to high densities of endangered wild dogs, despite generally low wildlife densities (Woodroffe *et al.*, 2005). Tourist preferences do not, however, address other limitations to ecotourism on communal lands such as shortages of capital and expertise, and the fact that ecotourism operations under these conditions rarely generate profits or incentives for conservation over a significant land area (Kiss, 2004; Walpole & Thouless, 2005).

The findings of this study also have implications for the sustainability of tourism. Marketing a diversity of tourist products in line with the diverse viewing preferences of visitors to protected areas in South Africa may prevent over-utilisation of popular tourism destinations. At present, advertising of wildlife areas by western tour operators is presently skewed heavily towards large charismatic mammals and notably the 'big five' (Goodwin & Leader-Williams, 2000) limiting the extent to which areas lacking these attractions benefit from ecotourism. There are well over a hundred state-owned protected areas in South Africa, many of which have attractive scenery and excellent bird watching opportunities but lack the big-five. Most of these parks presently receive few tourists and depend on subsidies from the handful of well visited parks (Goodwin & Leader-Williams, 2000; Thirgood *et al.*, 2006). Appropriate marketing has the potential to entice locals and experienced wildlife visitors to visit these areas, taking pressure off very popular destinations such as Kruger and Pilanesberg.

The significance of tourist preferences outlined in this study for conservation is likely to be lower in countries with fewer tourist arrivals and in countries with poorly developed domestic tourism markets. South Africa is unusual among African nations in having a sizeable domestic tourism market (Obua & Harding, 1996). Ecotourism operators in other African countries should aim to foster interest in wildlife tourism among locals to enable the derivation of revenues from a greater variety of wildlife areas, and to reduce the susceptibility of the ecotourism operations to political instability.

In conclusion, charismatic mega-fauna represents the feature of protected areas most important to tourists, and these species play a key role in attracting the bulk of visitors to parks. Viewing preferences diversify with increasing experience of visiting protected areas and charismatic species are thus

important by attracting tourists to parks for the first time, enabling the development of more diverse preferences. There is considerable interest among some tourists, particularly experienced wildlife-viewers and local tourists, in experiencing rare or less well known mammal species, bird and plant life, suggesting the ecotourism has the potential to generate revenues across a diversity of land tenure types, including areas lacking charismatic mega-fauna. Diverse viewing preferences among tourists also mean that ecotourism may have potential to create incentives for management for intact guilds and species diversity. The conservation role of ecotourism may thus not be as limited by narrow tourist preferences as previously thought.

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