



# The determinants of visitor length of stay at the Kruger National Park

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This study analysed the determinants of tourists' length of stay at one of South Africa's oldest and largest national parks, the Kruger National Park. It took the different regions of this Park into account and analysed visitors to the northern and southern regions separately to distinguish the different determinants of length of stay. The results showed clear differences between the determinants of length of stay for the two regions, indicating that for a destination with the size and scope of the Kruger Park, a regional approach should be followed to improve management and encourage visitors to stay longer.

**Conservation implications:** The northern and southern regions of the Kruger National Park differ significantly in terms of ecosystems, rainfall, climate and wildlife. From a tourism perspective, these regions should be managed separately taking the distinct differences of the two regions into consideration. Different variables influence visitors' length of stay in these two regions. Conservation practitioners can use the results of this study to manage visitors to these areas.

## Introduction

This study looked at what determines the length of time tourists stay at one of South Africa's oldest and largest national parks, the Kruger National Park. Menezes, Moniz and Vieira (2008:205) state that 'the overall impact of tourists in a given economy hinges on length of stay'. Length of stay is of fundamental importance for tourist destinations, because the tourist product adapts itself to the amount of time the tourist has available at the destination and promotional campaigns must also be adjusted to the tourist's decisions in this regard (Martinez-Garcia & Raya 2008:1064). Thrane and Farstad (2009:2) and Barros, Butler and Correia (2010:13) agree that length of stay is of major importance to any tourism destination, because longer stays are positively associated with the total earnings from tourist activities and with higher bed-occupancy rates.

Barros and Machado (2010) posit that:

tourist destinations should aim to attract tourists who wish to stay longer, particularly during off-peak seasons, since tourists who visit only for short periods tend to stay centrally and visit only the major tourist attractions. (p. 2)

Longer-stay tourists, on the other hand, visit a wider range of attractions, explore more peripheral regions and generate more diverse economic, social and environmental impacts. Alegre and Pou (2006) point out that:

length of stay at a holiday destination, a basic characteristic of the holiday, has important repercussions for the tourist destination since it affects occupancy rates and final income derived from tourists (in other words, the economic impact and value of tourists). (p. 1352)

Identifying the factors that make tourists stay longer is therefore extremely beneficial to any destination seeking to increase visitor spending (Peypoch *et al.* 2011:1).

Given that the topic is so important, there were several strong motives for researching length of stay and for choosing the Kruger National Park as a case study. Firstly, Alegre and Pou (2006) claim that most studies on tourism demand fail to pay attention to length of stay, at least at a micro-economic level, where the researcher can control for individual heterogeneous behaviour. In addition, even though most tourism economists and managers agree that length of stay has a direct impact on spending (see Cannon & Ford 2002; Jang, Bai & O'Leary 2004; Kozak, Gokovali & Bahar 2008; Mules 1998; Seaton & Palmer 1997; Spotts & Mahoney 1991; Taylor, Fletcher & Clabaugh 1993, amongst others), little attention has been paid to this important topic (Decrop & Snelders 2004; Gokovali, Bahar & Kozak 2007:737). Secondly, the topic of tourists visiting a South African nature-based destination has not attracted more research thus far, despite the essential role these destinations

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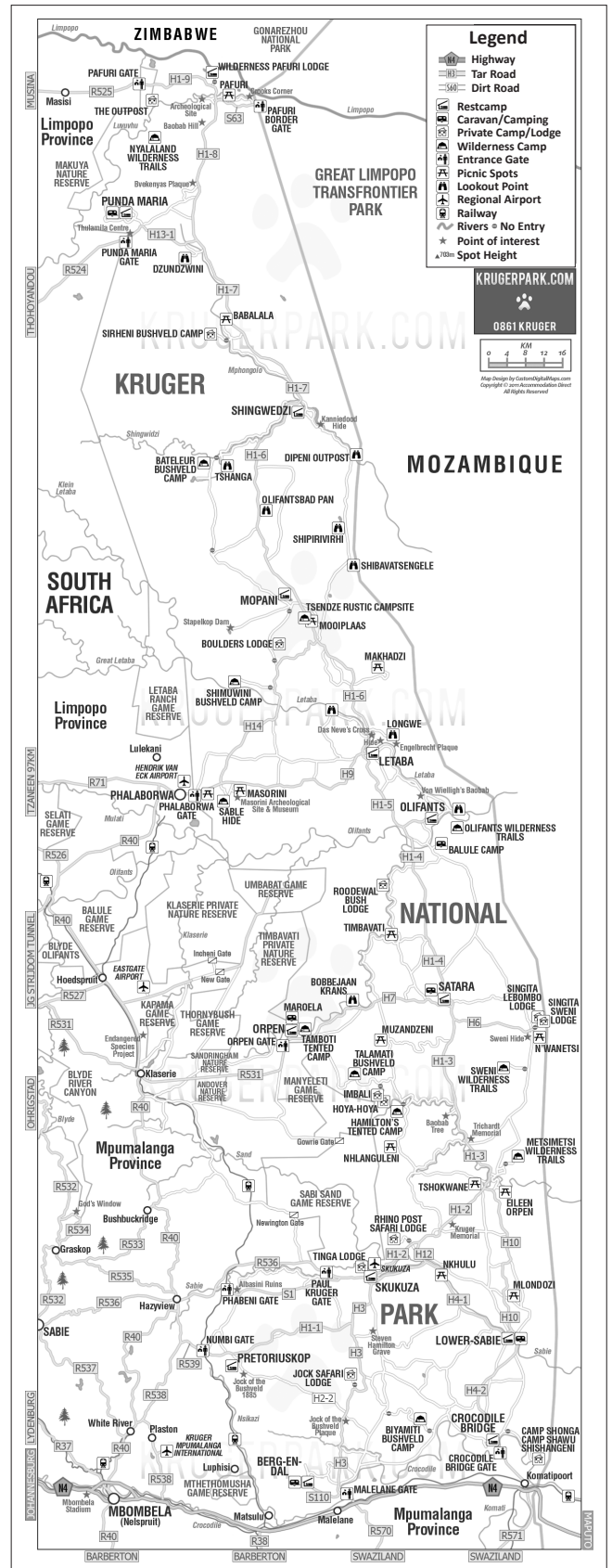
play in tourism and conservation (Holden 2008:180; South African National Parks [SANParks] 2009:31). Thirdly, the huge numbers of visitors to the Kruger Park make it South Africa's most profitable national park (SANParks 2009:19).

As an all-inclusive holiday destination that provides a unique nature and leisure experience, the Kruger Park is a magnet for tourists, both domestic and international. It is a major export earner and constitutes an important part of the South African tourism industry (Cook, Yale & Marqua 2010:212; Saayman & Saayman 2008; Uysal, McDonald & Martin 1994:18). The Park attracts over one million visitors per annum and is one of the top five international tourist destinations in the country (SANParks 2009; Van der Merwe & Saayman 2008:154). Currently, 80% of SANParks revenue comes from Kruger Park accommodation and admission fees (Mabunda & Wilson 2009:118). The findings of this study, a contribution to the still small literature on the topic, will be valuable in helping to sustain this growth and ensure long-term sustainability and competitiveness.

Finally, the size of the Kruger Park also makes it an ideal subject for this research, as it allows for comparison, within one park, of different tourist motives for length of stay. This is one of the largest game reserves in the world, covering approximately 20 000 km<sup>2</sup>, and extending 350 km from north to south and 60 km from east to west; an area larger than, for example, Israel, Wales or the Netherlands. The Kruger Park includes two climatic transitional zones, namely the tropical and subtropical north and the temperate south; each with a clear rainfall gradient (lower rainfall in the south compared to the north) (Mabunda, Pienaar & Verhoff 2003:16). From an ecological point of view, it is divided into four regions, namely the far northern and northern (Shingwedzi, Pafuri and Punda Maria), central (Mopani, Satara, Orpen and Letaba) and southern (Berg-en-Dal, Crocodile Bridge, Pretoriuskop, Biyamiti, Malelane and Lower Sabie) (see Figure 1), each with its diverse ecosystem, vegetation and wildlife. From a tourism perspective, it is divided into northern and southern regions and tourists are attracted to these regions for different reasons, depending on what they want to see and do. Notable differences between the two regions include the number of rest camps and accommodation available (e.g. the southern region has more rest camps), accessibility (e.g. certain parts of the northern region are only accessible by 4x4s and there are fewer entry gates to this region), as well as wildlife and vegetation found (e.g. owing to a higher vegetative biomass to game ratio, the central and southern regions have more game and are known for sightings of the Big Five, whilst the northern region is more known for its large hippo, elephant and wild dog populations) (SA Venues 2013; Smit, Grant & Whyte 2007:227; Tinker & Tinker 2011:4).

Tourists' length of stay in the Kruger Park, and consequently the determinants thereof, will therefore depend on their specific choices. Taking this into consideration, this study analysed the northern and southern tourists separately so as to distinguish between the different determinants. The results of

the analysis made it possible to propose strategies to increase the amount of time tourists spend in the Kruger Park.



Source: Krugerpark.com, 2011, Full map of the Kruger National Park, viewed 07 August 2013, from <http://www.krugerpark.com/maps/full-map-of-the-kruger-national-park/>

FIGURE 1: Map of the Kruger National Park.

## Literature review

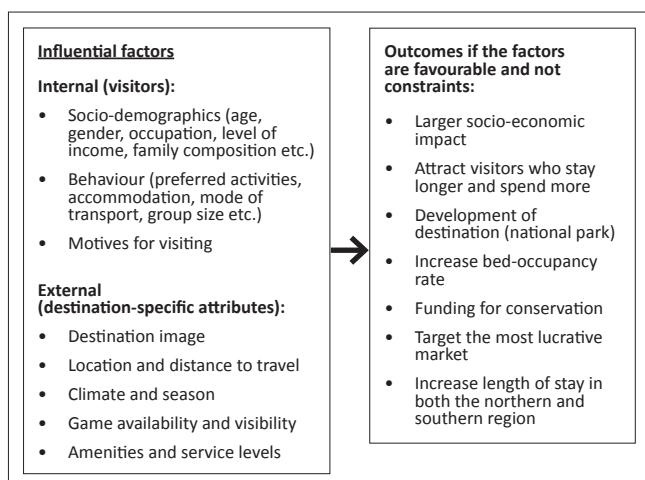
How long to spend on a visit is one of the main considerations in peoples' decision-making processes when making holiday plans, so destination managers need to know how to intervene in this process so as to encourage them to stay longer and thus spend more (Alegre & Pou 2006; Peypoch *et al.* 2011). Tourists weigh up the benefits of different holiday destinations, assessing the cost of each and the length of stay they can afford, financially and time-wise (Alegre & Pou 2006:1343). The chosen length of stay may reflect the attractiveness of a destination, but several other factors may come into play, as Gokoali *et al.* (2007) indicate:

the amount of free time the tourist has available, the availability of flexible package tour deals, the level of prices, the number of people in the party, and familiarity with the destination, to name but a few. (p. 737)

The length of a holiday, like the decision to take a trip or the choice of a particular destination, may therefore be explained by a combination of internal and external factors, as shown in Figure 2. Internal factors may be personal and family characteristics, as well as economic factors such as the tourist's level of income (Alegre & Pou 2006; Machado 2010). External variables may include destination-specific (in this case park-specific) attributes such as destination image, type of destination, activities and amenities on offer or the price of the holiday (Saayman & Saayman 1997; Machado 2010; Kruger *et al.* 2012).

Once the combination of factors that influence length of stay have been determined, marketing strategies can be planned that will encourage longer stays at a destination so that economic benefits can be maximised (Barros & Machado 2010:2; Gokoali *et al.* 2007:737; Menezes *et al.* 2008:206). Menezes *et al.* (2008) state that:

uncovering the determinants of length of stay is critical to the design of marketing policies that promote longer stays, associated with higher occupancy rates and revenue streams: an enterprise ever more valuable given the increasingly pervasive pattern of shorter length of stays. (p. 207)



Source: Saayman and Saayman (1997) and Machado (2010). For more information on these sources, please see the reference list of the article, Kruger, M. & Saayman, M., 2014, 'The determinants of visitor length of stay at the Kruger National Park', *Koedoe* 56(2), Art. #1114, 11 pages. <http://dx.doi.org/10.4102/koedoe.v56i2.1114>

**FIGURE 2:** Factors influencing visitors' length of stay at a destination (national park).

Length of stay can also be an indicator of the profile of tourists visiting a particular destination and their propensity to spend whilst on holiday; information regarding their length of stay can consequently be used to increase tourist spending (Davies 2002; Gokoali *et al.* 2007; Legohérel 1998; Mok & Iverson 2000).

Taking the length of stay into account can help in the effective management and planning of tourism destinations (Barros & Machado 2010; Ritchie & Crouch 2003). Visitors who stay longer experience more and the destination earns more as they are more likely to become aware of and use facilities and services at the location where they are staying and in surrounding regions (Gokoali *et al.* 2007; Kozak 2001). Saarinen (2005) points out that identifying the determinants of length of stay is important for research on sustainable tourism because:

they are useful in forecasting tourists' on-site time and, concomitantly, the stress on local resources caused by tourism activity; an important issue for analysing carrying capacity, especially at nature-based tourism destinations such as the Kruger Park. (p. 35)

However, despite the numerous benefits associated with identifying the determinants of length of stay, studies of this variable in tourism are rare (Barros & Machado 2010:3), especially within a nature-based context. Those available are mainly descriptive – mostly of popular 'sea-and-sun' destinations – and they analyse the way different tourist profiles or types of trip affect the length of stay (see Alegre & Pou 2006; Barros & Machado 2010; Barros *et al.* 2010; Gokoali *et al.* 2007; Menezes *et al.* 2008; Martinez-Garcia & Raya 2008; Oppermann 1995, 1997; Seaton & Palmer 1997; Sung *et al.* 2001).

With regard to socio-demographic determinants, collectively these studies found that older, male and married tourists tend to stay longer at a destination than tourists with a higher level of education and a high-income profession (Alegre & Pou 2006:1349–1352; Alegre, Mateo & Pou 2011; Barros & Machado 2010:10–13; Barros *et al.* 2010:18–20; Gokoali *et al.* 2007:742–744; Martinez-Garcia & Raya 2008:1070–1073; Menezes *et al.* 2008:214–218; Peypoch *et al.* 2011). Some specific findings were that visitors aged 25–34 years had a lower probability of long stays than those aged 35–44 years (Gokoali *et al.* 2007:742–744) and that as the size of the party and daily expenditure increased, the probability of staying longer decreased (Alegre & Pou 2006:1349–1352). Based on this, the following hypothesis was formulated:

- Hypothesis 1 (socio-demographic characteristics):** The length of stay is determined by individual socio-demographic characteristics such as home language, marital status, level of education, annual gross income and province of origin.

With regard to behavioural determinants, studies show that tourists who travel shorter distances stay a shorter time than those who travel longer distances. Travel motives





(leisure, visiting friends or relatives, business and others), repeat visits and an increased number of tourist attractions visited all increased the expected length of stay (Menezes & Moniz 2006:10–12; Menezes *et al.* 2008:214–218). Gokovali *et al.* (2007:742–744) found that tourists who choose an ‘all-inclusive’ type of holiday tend to have a lower probability of a long stay than those who choose a ‘half-board’ type of accommodation and that as the number of previous visits to the destination increases, the probability of a long stay increases; however, as the daily expenditure increases, the probability of a long stay decreases. When it comes to a destination’s image, Machado (2010) reveals that tourists visiting destinations with a better reputation tend to stay longer. Other determinants, such as nationality, type of flight, environmental initiatives, repeat visits, word-of-mouth recommendations, as well as quality and hospitality also tend to encourage longer stays (Alegre & Pou 2006: 1349–1352, 2011; Barros & Machado 2010:10–13; Gokovali *et al.* 2007:742–744; Menezes & Moniz 2006:10–12; Menezes *et al.* 2008:214–218; Peypoch *et al.* 2011). Based on this, the second hypothesis was formulated:

- **Hypothesis 2 (behavioural characteristics):** The length of stay is determined by individual behavioural characteristics such as mode of transport and travel motives.

The findings of the abovementioned studies show collectively that determinants of length of stay are destination specific, but that tourists’ socio-demographic characteristics and economic factors are also significant determinants. Furthermore, it is important to note that tourists cannot be considered homogeneous in terms of the effects of different factors on how long they decide to stay. Given the size of the Kruger Park and the variety of its offerings, the determinants could differ for tourists visiting the northern and southern regions. This led to the third hypothesis:

- **Hypothesis 3 (destination characteristics):** The length of stay is determined by the destination characteristics (northern and southern region of the Park – for example, seeing certain types of animals found in each region) experienced and valued by the tourist.

## Research method and design

### The questionnaire

The questionnaire used during the two surveys (north and south) consisted of three sections: Section A captured the respondents’ demographic details, including language, gender, age, race, and marital status, country of residence, province, highest qualification and occupation, whilst Section B captured economic information such as size of travel group, number of people paid for, the type of accommodation used, the number of nights spent at the Park, the number of visits over the last 3 years and spending dynamics. The spending questions were detailed by spending category, including entrance and conservation fee, accommodation, food and beverages, shopping, recreation and transport. Section C captured the respondents’ reasons for visiting the

Park, where 12 items were listed and respondents were asked to rate the importance of each item on a five-point Likert scale of importance: 1 = not at all important, 2 = slightly important, 3 = important, 4 = very important and 5 = extremely important (cf. Kruger, Saayman & Manners 2012). This section also captured respondents’ perception of the value of the Big Five (i.e. the five most difficult African animals to hunt on foot: lion, African elephant, Cape buffalo, leopard and rhinoceros). For the purpose of this research, the information from all three sections was included in the analyses.

### Sampling method and survey

The survey sample consisted of respondents to this questionnaire, which was distributed to visitors staying in the Kruger Park from 24 June 2011 to 02 July 2011 (northern region, winter survey) and from 27 December 2011 to 04 January 2012 (southern region, summer survey). The rest camps surveyed for the northern region were Olifants, Letaba, Mopani and Punda Maria and for the southern region Satara, Skukuza, Lower Sabie and Berg-en-Dal. Fieldworkers distributed questionnaires in the evenings and collected the questionnaires later during the same evening or early the next morning. A convenience sampling method was followed and questionnaires were therefore distributed to available overnight visitors (camping and chalet). Only one questionnaire per group was allowed and only adults (18 years and above) were allowed to complete the questionnaire.

The latest available SANParks statistics for 2009 were used to calculate the proportion of responses that would constitute a representative sample. According to these statistics, 384 249 (*N*) tourists stayed for at least one night in the Park in 2009 (Stevens 2010). Furthermore, Du Plessis, Saayman and Erasmus (2010) state that the average travelling group of tourists to the Park was 3.4 persons. The total population (*N*) was divided by 3.4 and this resulted in 112 132 tourist groups (*N*). The minimum number of completed questionnaires sufficient for this study would be 399 (Israel 2009). Of the total of 853 questionnaires collected in the two surveys, 410 had been fully completed, 175 from the northern region and 235 from the southern region. Only fully completed questionnaires were used in the analysis to ensure that the important socio-economic and behavioural variables were all included.

### Statistical analysis

Microsoft Excel was used to capture the data and IBM SPSS Statistics 20 and R 2.14.1 to analyse it. The analysis was conducted in two stages. Firstly, data were captured in Microsoft Excel and analysed using SPSS (2013). Factor analyses were conducted to determine respondents’ motives for travelling to the northern and southern regions of the Kruger National Park. To determine whether a factor analysis could have been conducted on the motivational data variables, the Bartlett’s test of sphericity and Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was performed on both the expectations, as well as the experience scales. According to



Barlett (1954), a factor analysis is appropriate when the result of the Barlett test for sphericity indicates significance, in other words  $p < 0.05$ . In agreement, Kaiser (1970, 1974) explains that the minimum value of the KMO (the measure of sampling adequacy) for a factor analysis to be performed should be 0.6. In order to determine the smallest number of factors from the respective data variables, the pattern matrix of the principle component factoring extraction technique was applied. The Kaiser normalisation (eigenvalues above 1.0 or more) guided the decision on the amount of factors retained. To name the factors, according to Dancey and Reidy (2004:431), a decision should be made on how strong the factor loadings must be to be included in a factor, but this tends to be arbitrary and varies amongst authors. All items with a factor loading above 0.4 were considered as contributing to a factor and all with loadings lower than 0.4 as not correlating significantly with this factor (Steyn 2000). In addition, any item that cross-loaded onto two factors, with factor loadings greater than 0.4, was categorised in the factor where interpretability was best. The internal consistency of each factor was also calculated by means of the reliability coefficient (Cronbach's alpha). Only reliability coefficients above 0.6 were considered as acceptable for the study because a reliability coefficient below 0.6 indicates that the scale has poor reliability and unsatisfactory internal consistency (Malhotra 2007:285; Zikmund *et al.* 2010:306). Additionally the inter-item correlations were also calculated as another reliability measure, which, as recommended by Briggs and Cheek (1986), should be between 0.2 and 0.4.

Secondly, the dependent (predicted) variable was understood to be length of stay, defined as the number of days at the Park; accordingly, it is a non-negative count variable. A Poisson regression was applied to identify the determinants of length of stay for both the northern and southern region. The link function for a Poisson regression model is the log link function and the model (with a log link) used in this research is as follows:

$$\log \mu = \alpha + \beta x \quad [\text{Eqn } 1]$$

The mean satisfies the exponential relationship:

$$\mu = \exp(\alpha + \beta x) = e^{\alpha} (e^{\beta})^x \quad [\text{Eqn } 2]$$

Where:

a one-unit increase in  $x$  has a multiplicative impact of  $e^{\beta}$  on  $\mu$ . The mean of  $Y$  at  $x + 1$  equals the mean of  $Y$  at  $x$  multiplied by  $e^{\beta}$ . If  $\beta = 0$ , then  $e^{\beta} = e^0 = 1$  and the multiplicative factor is 1. Then, the mean of  $Y$  does not change as  $x$  changes. If  $\beta > 0$ , then  $e^{\beta} > 1$ , and the mean of  $Y$  increases as  $x$  increases. If  $\beta < 0$ , the mean decreases as  $x$  increases. (Agresti 2007:75)

A Poisson regression model was also used to find the determinants of length of stay for the southern region; however, the over-dispersion parameter was 2.45. A negative binomial regression was used because this model takes this over-dispersion into account. According to Agresti (2007:81), the negative binomial is another distribution that is concentrated on the non-negative integers. Unlike the Poisson, it has an additional parameter such that the

variance can exceed the mean. The negative binomial distribution has:

$$E(Y) = \mu, \text{Var}(Y) = \mu + D\mu^2 \quad [\text{Eqn } 3]$$

The index  $D$ , which is non-negative, is called a dispersion parameter. The negative binomial distribution occurs as a type of mixture of Poisson distributions. Greater heterogeneity in the Poisson means results in a larger value of  $D$ . As  $D \rightarrow 0$ ,  $\text{Var}(Y) \rightarrow \mu$  and the negative binomial distribution converges to the Poisson distribution. The further  $D$  falls above 0, the greater the over-dispersion relative to Poisson variability (Agresti 2007:81).

## Results

This section presents the profile of respondents as well as the results of the factor analysis (travel motives), the Poisson regression analysis (northern region) and the negative binomial regression analysis (southern region).

### Profile of respondents

Table 1 shows the profile of the respondents in each of the two regions surveyed in 2011–2012. There are notable similarities between the northern and southern region tourists, especially in terms of home language, average age, marital status, level of education, mode of transport, length of stay and being holders of a Wild Card (a loyalty card that can be used at all 22 national parks in South Africa and offers the benefits of discounted entrance fees and a contribution to conservation). The main differences between the two profiles are in terms of province of origin, average spending and financial responsibility, with the northern region attracting more visitors from the Western Cape, who are financially responsible for more people during their trip and, consequently, have a higher average spending than tourists who visit the southern region.

### Factor analysis

The pattern matrix of the principal component factor analyses using an Oblimin rotation with Kaiser normalisation identified four motivational factors each for the northern and the southern regions. These were labelled according to similar component items (Table 2). These factors accounted for 58% and 64% of the total variance for north and south, respectively. The average of all items contributing to a specific factor revealed factor scores that interpret the factor to the original five-point Likert scale. All factors indicated very good convergent validity with Cronbach alphas above 0.6 and inter-item correlations of between 0.31 and 0.63.

In the case of the northern region, 'to photograph animals and plants' was not included in the factor analysis, because it did not have a loading greater than 0.4. The Kaiser-Meyer-Olkin measure of sampling adequacy of, respectively, 0.70 and 0.75 indicated that patterns of correlation were relatively compact and yielded distinct and reliable factors (Field 2005:640). In

**TABLE 1:** Comparison of profiles of respondents staying in the northern and southern regions of the Kruger National Park, 2011–2012.

Category	Respondents June–July 2011, northern region	Respondents December 2011 – January 2012, southern region
Home language	Afrikaans (64%); English (32%)	Afrikaans (64%); English (35%)
Average age	49 years	46 years
Most common marital status	Married	Married
National respondents' province of origin	Gauteng and Western Cape	Gauteng and Mpumalanga
Majority of respondents' country of origin	South Africa (92%)	South Africa (88%)
International respondents' country of origin	United States of America, Australia, Germany, Netherlands, United Kingdom	Germany, Netherlands, United Kingdom, France
Highest level of education	Diploma or Degree	Diploma or Degree
Average number of people paid for (financial responsibility during trip)	4 persons	3 persons
Most common mode of transport	4x4 and sedan	4x4 and sedan
Average length of stay	6.2 nights	6.3 nights
Average expenditure per group	R 8884.00	R 8208.00
In possession of a Wild Card	Yes	Yes

**TABLE 2:** Results of the factor analyses – motives of visitors to the Kruger National Park.

Region	Motivation factors	Motivation items	Factor loadings	Mean value	Reliability coefficient	Inter-item correlation
Northern region	Factor 1: Escape	-	-	3.293	0.65	0.28
		To relax	0.837	-	-	-
		To get away from my routine	0.806	-	-	-
	Factor 2: Exploration	-	-	3.509	0.76	0.61
		To explore a new destination	0.626	-	-	-
		To spend time with my friends	0.817	-	-	-
	Factor 3: Education and spiritual fulfilment	-	-	4.391	0.60	0.40
		Primarily for educational reasons (to learn things, increase my knowledge)	0.822	-	-	-
		It is a spiritual experience	0.786	-	-	-
		I am loyal to the Park	0.569	-	-	-
		For the benefit of my children	0.433	-	-	-
	Factor 4: Value and amenities	-	-	2.860	0.60	0.31
		It is value for money	0.879	-	-	-
		The Park has great accommodation and facilities	0.852	-	-	-
Southern region	Factor 1: Escape	-	-	3.420	0.71	0.37
		To relax	0.827	-	-	-
		To get away from my routine	0.740	-	-	-
	Factor 2: Group togetherness and exploration	-	-	3.177	0.61	0.35
		To spend time with my friends	0.780	-	-	-
		To explore a new destination	0.755	-	-	-
		For the benefit of my children	0.575	-	-	-
	Factor 3: Photography and spiritual fulfilment	-	-	4.027	0.68	0.43
		To photograph animals and plants	0.761	-	-	-
		It is a spiritual experience	0.747	-	-	-
		I am loyal to the Park	0.745	-	-	-
		Primarily for educational reasons (to learn things, increase my knowledge)	0.507	-	-	-
	Factor 4: Value and amenities	-	-	3.506	0.77	0.63
		It is value for money	0.833	-	-	-
		The Park has great accommodation and facilities	0.799	-	-	-

both cases, Bartlett's test of sphericity also reached statistical significance ( $p < 0.001$ ), supporting the factorability of the correlation matrix (Pallant 2007:197).

As Table 2 shows, the following reasons for visiting the northern region of the Park were identified: 'Escape' (Factor 1), 'Exploration' (Factor 2), 'Education' (Factor 3) and 'Value and amenities' (Factor 4). With a mean value of 4.391, 'Education' was found to be the most important motive for travelling to the northern region, followed by 'Exploration' (3.509) and 'Escape' (3.293). 'Value and amenities' (2.860) was rated the least important motive. For the southern region, the

motives and the grouping of the items and their importance were different. 'Escape' (Factor 1), 'Group togetherness and exploration' (Factor 2), 'Photography and spiritual fulfilment' (Factor 3) and 'Value and amenities' (Factor 4) were identified as the reasons for travelling to this part of the Park. 'Photography and spiritual fulfilment' (4.027) was rated as the most important motive, followed by 'Value and amenities' (3.506), 'Escape' (3.420) and 'Group togetherness and exploration' (3.177). It is clear from these results that the tourists in this sample visited the two areas of the Park for somewhat different reasons and that the characteristics of the two areas influence these motives.



## Poisson and negative binomial regression analyses

As Table 3 shows, the dummy variables (socio-demographic and behavioural variables, as well as the travel motives indicated in Table 2) for both the northern and southern regions were coded 1 and 0 to be included in the Poisson regression and the negative binomial regression analyses.

### Northern region

A Poisson regression model was performed with all the independent variables indicated in Table 3, after which a stepwise selection procedure was carried out to decrease the number of variables. The null hypothesis was that the Poisson regression model provided an adequate fit to the data. The residual deviance is a measure of how much the data deviates from the model, so the larger the residual deviance is, the worse the fit. The residual deviance here was 176.55, to be compared with a chi-square distribution with 166 degrees of freedom. The  $p$ -value was 0.274, which

**TABLE 3:** Relationship between variables and respondents' length of stay.

Category	Variable (topic of question)	Coding
Socio-economic	Home language	Afrikaans = 1; Other = 0
	Are children accompanying you?	Yes = 1; No = 0
	Most common marital status	Married = 1; Other = 0
	National respondents' province of origin	Gauteng = 1; Other = 0 Mpumalanga = 1; Other = 0
	Highest level of education	High level of education = 1; Other = 0
	Annual gross income	High income = 1; Other = 0
	Mode of transport to the Park	4x4 = 1; Other = 0 Sedan = 1; Other = 0
Behavioural	Total spending per group	Open question
	Group size	Open question
	Number of people paying for	Open question
	Wild Card holder	Yes = 1; No = 0
	Recommend park to friends or family	Yes = 1; No = 0
	When decision was made to visit the Park	Long in advance = 1; Other = 0
	Importance of the role of the Big Five	Important to Extremely important = 1; Other = 0
	Value of the Big Five	Lion = 1; Other = 0 Leopard = 1; Other = 0 Rhino = 1; Other = 0 Buffalo = 1; Other = 0 Elephant = 1; Other = 0
	Member of a conservation organisation	Yes = 1; No = 0

**TABLE 4:** Results of the stepwise Poisson regression analysis.

Category	Estimate	Standard error	z-value	Pr(> z )
Intercept	0.938	0.162	5.797	0.000
Travelling from Gauteng	-0.144	0.063	-2.269	0.023*
Total spending	0.000	0.000	3.116	0.002*
Wild Card	0.537	0.104	5.182	0.043*
Decision to visit made: Long in advance	0.175	0.086	2.028	0.043*
Importance of the Big Five: 'Important' to 'Extremely important'	0.099	0.062	1.577	0.115
Lion	0.277	0.107	2.589	0.010*
Leopard	0.215	0.104	2.071	0.038*
Money for conservation: Yes	-0.184	0.072	-2.552	0.011*

\*, Indicates significance at the 5% level

was large enough that the null hypothesis did not have to be rejected. The model therefore appeared to be adequate.

As shown in Table 4, Gauteng as a province of origin ( $p = 0.023$ ), total spending ( $p = 0.002$ ), decision to visit made long in advance ( $p = 0.042$ ), being a Wild Card holder ( $p = 0.004$ ), lion and leopard as 'must-see' Big Five animals (respectively  $p = 0.010$  and  $p = 0.034$ ) and donating money for conservation ( $p = 0.010$ ) had a statistical significant influence on length of stay. With regard to socio-demographic determinants, based on the signs of the coefficients, a person coming from Gauteng would have a predicted stay at the Park 0.866 times shorter than that of the person not coming from this province. Therefore, coming from Gauteng decreased the length of stay when controlling for the other variables. The reason for this could be that, for the tourists travelling from this province, the Park is close and they can therefore travel to the Park more often and, consequently, do not have to stay long in the Park. Tourists with a higher average spending per trip tended to have a longer length of stay. These tourists would have a predicted stay at the Park 1.000 times longer than those with a lower spending per trip. These results validated Hypothesis 1 that stated that the length of stay is determined by individual socio-demographic characteristics.

With regard to behavioural determinants, tourists who made their decision to travel to the Park well in advance would have a predicted stay 1.191 times longer than that of the person who made a spontaneous decision. In addition, tourists who had a Wild Card would have a predicted stay at the Park 1.711 times longer than that of a person who did not have a Wild Card. Having a loyalty card therefore increased the length of stay when controlling for other variables, validating Hypothesis 2 that individual behavioural characteristics influence length of stay.

With regard to the popularity of the Big Five, tourists who most wanted to see lion and leopard would have predicted stays 1.314 and 1.240 times longer, respectively, than those who did not want to see these animals. This could be because the Park is synonymous with the lion, its image being visible in the Park's logo and used extensively in marketing and branding. Leopards are rarely sighted – this is the Big Five animal that most often eludes visitors. This makes them sought-after and visitors perhaps stay longer to increase their chances of seeing one. Another reason may be that June and July (the winter months) are the prime game-viewing time in the Park. Visitors who donated money for conservation causes tended to stay fewer days at the Park and would have a predicted stay 0.832 shorter than that of a person who did not support these causes. Therefore, making the decision to travel well in advance and wanting to see lion and leopard increased the length of stay at the Park when controlling for other variables, whilst donating money for conservation decreased the length of stay. Regarding the Big Five as important to extremely important ( $p = 0.114$ ) was not statistically significant. This determinant



**TABLE 5:** Results of the negative binomial regression analysis.

Category	Estimate	Standard error	z-value	Pr(> z )
Intercept	1.104	0.218	5.060	0.000
Afrikaans	-0.175	0.083	-2.095	0.036*
Number of people paying for	-0.071	0.025	-2.850	0.004*
Country of residence: South Africa	0.244	0.167	1.458	0.145
Decision to visit made: Long in advance	0.243	0.089	2.740	0.006*
Mode of transport: 4×4	-0.137	0.083	-1.647	0.100
Mode of transport: Sedan	-0.281	0.099	-2.828	0.005*
Total spending	0.000	0.000	4.318	0.000*
Wild Card	0.717	0.105	6.849	0.000*
Lion	-0.132	0.079	-1.658	0.097
Leopard	-0.115	0.080	-1.438	0.150
Motive: Escape	0.082	0.041	2.025	0.043*

\*, Indicates significance at the 5% level

did, however, still have an important effect on length of stay. Tourists who considered seeing the Big Five to be very important would have a predicted stay 1.103 times longer than those for whom this was less important. These results supported Hypothesis 3 that destination characteristics also influenced length of stay.

### Southern region

Here the residual deviance was 218.89, to be compared with a chi-square distribution with 222 degrees of freedom. The *p*-value was 0.546, which was large enough that the null hypothesis did not have to be rejected. The model therefore appeared to be adequate.

As Table 5 shows, Afrikaans as home language (*p* = 0.036), number of people paying for (*p* = 0.004), decision to visit made long in advance (*p* = 0.006), sedan as mode of transport (*p* = 0.004), total spending (*p* = 0.000), being a Wild Card holder (*p* = 0.000) and being motivated by 'Escape' (*p* = 0.043) had a statistically significant influence on length of stay. With regard to socio-demographic determinants, Afrikaans-speaking tourists and those who used a sedan to travel to the Park would have a predicted stay respectively 0.840 and 0.755 times shorter than that of either English-speaking or foreign language tourists and tourists who used other modes of transport to travel to the Park, validating Hypothesis 1.

With regard to behavioural determinants, travelling with a larger group had a negative influence on length of stay and visitors who travelled in larger groups to the Park would have a predicted stay 0.932 shorter than that of tourists who travelled in smaller groups. Here, the result was similar to that obtained for the northern region: making the decision to travel to the Park well in advance had a positive influence on length of stay and these tourists would have a predicted stay 1.275 longer than that of the tourists who made a spontaneous decision. Tourists motivated more by the motive 'Escape' also tended to stay longer at the Park (1.088 times longer). In addition, those with a higher total average spending and who were Wild Card holders tended to stay longer at the Park (respectively 1.000 and 2.048 times longer). These results confirmed Hypothesis 2.

The other variables did not have a statistically significant influence on length of stay; however, tourists who were local residents from South Africa tended to stay 1.276 times longer than tourists travelling from outside the borders of the country. Like the tourists who travelled with a sedan to the Park, those who used a 4×4 to travel tended to have a shorter length of stay (0.872 times shorter than that of visitors who used other modes of transport). Contradicting the results obtained for the northern region, wanting to see a lion or leopard had a negative influence on length of stay (respectively 0.877 and 0.892 shorter than the stay of tourists who did not particularly want to see them), rejecting Hypothesis 3 that destination characteristics influenced length of stay.

### Trustworthiness

The following steps, as proposed by Field (2003) as well as Zikmund *et al.* (2010) were followed to design and validate the questionnaire as well as the results:

- Content validity: an in-depth literature analysis was performed to identify the relevant motivational factors for travelling to the Kruger National Park. The questionnaire was based on Van der Merwe and Saayman (2008), Saayman and Saayman (2009) and Kruger and Saayman (2010).
- Face validity: statistical consultation services advised on the formulation of the statements as well as the measuring scales used. The park manager also gave their opinion on the included items and whether it captured the essence of the study.
- Construct validity: factor analyses were performed on the motivational factors for travelling to the northern and southern region of the park in order to determine the degree to which the statements measures what it claims, or purports, to be measuring (please see the 'Statistical analysis' and 'Factor analysis' sections for more detail).
- Reliability: to test the reliability of the identified factors, reliability coefficients (Cronbach's alpha) and inter-item correlations were calculated (please also see the 'Statistical analysis' and 'Factor analysis' sections for more detail).

### Discussion

This article identified the determinants of length of stay for tourists at a nature-based destination in South Africa, namely the Kruger National Park. The size, nature and characteristics of this Park made it possible for the first time to differentiate between determinants of length of stay for different regions, namely the northern and southern regions of the Kruger Park. The results revealed clear differences between the determinants of length of stay for the two regions. The general conclusion was that tourists travelling to the northern region with a higher total average spending, who made their decision to visit the Kruger Park long in





advance, who were Wild Card holders and who were keen to see lion and leopard whilst on holiday were likely to stay longer in this region of the Park.

A different set of determinants were found to affect the length of stay in the southern region: here, Afrikaans-speaking tourists who travelled in smaller groups, with a higher total average spending, who made their decision to travel to the Park long in advance, who were Wild Card holders and who were motivated by the need to escape, were likely to stay longer. This study corroborates the finding by Alegre and Pou (2006) that travelling in larger groups has an inverse influence on length of stay: the larger the group, the shorter the stay. In addition, the results support the finding by Gokovali *et al.* (2007) that tourists who spend more stay longer. However, it contradicts the findings by Menezes and Moniz (2006) and Menezes *et al.* (2008) that tourists who travel shorter distances stay longer than those who travel further.

The results supported all three of the study's hypotheses. Firstly, for both the northern and southern regions of the Park, tourists' individual socio-demographic characteristics (total spending, province of origin, group size and home language) influenced the length of stay, validating Hypothesis 1. The socio-demographic determinants were, however, different for the two regions. Secondly, behavioural variables (decision-making, mode of transport, being loyalty members, desire to see the Big Five and not donating to conservation causes) explained the length of stay, validating Hypothesis 2. Here again the determinants for the two regions were different; however, behavioural characteristics seemed to have a stronger influence on length of stay in both regions than socio-demographic characteristics. Thirdly, the length of stay was also determined by the characteristics of the two regions (the two destinations), such as the different likelihood of seeing the Big Five, validating Hypothesis 3.

It was clear from the results that the length of stay was specific to each of the two tourism destinations, supporting previous research by Alegre and Pou (2006), Alegre, Mateo and Pou (2011), Barros and Machado (2010), Barros *et al.* (2010), Gokovali *et al.* (2007), Martinez-Garcia and Raya (2008), Menezes and Moniz (2006), Menezes *et al.* (2008) and Peypoch *et al.* (2011). The determinants of length of stay are also more internal rather than external factors (see Figure 2). However, the study makes a further contribution: on the basis of its findings for the two regions, it cautions marketers to approach the Park from a regional perspective (i.e. making a distinction between two different parts of the same national park) rather as a whole. This might also apply to other destinations in the world that consist of regions offering different products.

## Limitations

One apparent limitation was that the survey was conducted separately during the winter (northern region)

and summer (southern region). The type of visitor differs during these months and future research should perhaps consider conducting a survey in both regions at the same time either during the winter or summer in order to accurately compare results.

## Recommendations

The results of this study provide a clear, focused view of the reasons for tourists' length of stay at the nature-based destination analysed. This method furthermore takes into account that the characteristics of the different regions themselves may influence length of stay. From a methodological point of view, a regional approach is therefore suitable for analysing a destination with multifaceted characteristics, such as the Kruger National Park, where tourists also resemble homogeneous tendencies. As it enables a concise comparison of the effect on length of stay of the same variables in different regions, it should prove valuable to destination marketers, planners and managers, as well as academics. Findings produced by this method will enable them to differentiate between and compare different regions and plan their strategies accordingly to encourage visitors to stay longer.

It is, of course, not possible to control all the determinants influencing length of stay in the Kruger Park. However, it is possible to concentrate on the important ones and to highlight them in advertising and promoting the different regions of the Park. On the basis of the findings of this study, a diversified strategy is recommended. If the Park is to increase tourists' length of stay in the northern region, its marketing campaigns should focus on the Big Five, especially lion and leopard. More information about these animals, their behaviour and preferred terrain should be made available to tourists at the different rest camps and in the game drives and guided walks. This might help to attract longer-staying visitors. To increase length of stay in the southern region, marketing campaigns should focus on people's desire to escape from the routine of their daily lives and emphasise that the Park is the ideal relaxing and breakaway holiday destination. The benefits of the current loyalty card (the Wild Card) should also be marketed more intensively, because this will encourage tourists to stay longer irrespective of which of the two regions they visit.

## Conclusion

In summary, because a combination of socio-demographic and behavioural determinants influences length of stay, and length of stay may differ for different regions of a destination, at a nature-based destination like the Kruger Park a regional analysis is advisable and a diversified marketing strategy will be more likely to increase the average length of stay than an undifferentiated mass strategy. As more research is needed to confirm these findings, it is recommended that a similar method be applied to other nature-based destinations, as well as 'sea-and-sun' destinations.



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### Authors' contributions

M.K. (North-West University) was the lead author on the article, conceptualised the idea, conducted the survey, analysed the data together with the Statistical Consultation Services at the North-West University and did the final technical editing. M.S. (North-West University) focused on the findings and implications, as well as general flow of the research.

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