

# What inspires birders to migrate South towards Africa? A quantitative measure of international avitourist motivation

N. Conradie, C. van Zyl & A. Strasheim

## ABSTRACT

Despite the rapid growth of avitourism (birding) globally, the international market potential of avitourism is not fully utilised. This research endeavoured to develop a multidimensional measure of avitourist motivation and to investigate the relative importance of the different dimensions or factors of avitourist motivation. Based on an in-depth review of the literature, a measure of birder motivation was developed. The research instrument was evaluated by a group of birding experts. The instrument was further evaluated and refined based on primary data gathered from 439 visitors to the British Birdwatching Fair and the Dutch Vogelfestival. Confirmatory factor analysis was used to evaluate the dimensionality and fit of the instrument based on the proposed factorial structure. Finally, a second-order confirmatory factor analysis model for avitourist motivation revealed higher-order constructs, namely wellbeing, intellectual activity, social interaction and photography. The results suggest that the photography dimension could be excluded as a motivational factor, and that birders consider aspects of wellbeing (emotional, spiritual, physical and mental stimulation) as the most important factors that motivate birding.

**Key terms:** avitourism (birding tourism), bird fairs, travel motivations, second-order confirmatory factor analysis

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Ms N. Conradie and Prof. C. van Zyl are in the Department of Transport Economics, Logistics and Tourism, University of South Africa. Dr A. Strasheim is in the Division of Communication Management, University of Pretoria. E-mail: [conran@unisa.ac.za](mailto:conran@unisa.ac.za)

## Introduction

“The travel and tourism industry is still expected to be one of the world’s fastest growing sectors. Emerging economies, in particular, are expected to be increasingly important engines of such growth, boosting both international and domestic tourism sectors” (World Travel and Tourism Council 2011: 1). Avitourism (birding tourism) has been identified as a growth area and a trend in tourism (Wheeler 2008: 208; Sekercioğlu 2002: 282; Cordell & Super 2004: 135). Specialised birdwatching trips are increasingly popular, and the term ‘twitchers’ has been coined for obsessive birdwatchers (Wheeler 2008: 208). Avitourism refers to birdwatching where the birder undertakes a trip of a mile (1.6 km) or more from home with the primary purpose of observing birds (La Rouche 2003: 4). Avitourists are educated, wealthy and conservation-supporting, representing a large and growing segment of low-impact tourists (Sekercioğlu 2002: 282). As avitourism is an environmentally conscious activity, it provides economic hope to many threatened natural areas around the world (Cordell & Herbert 2002: 54). These benefits can be summarised as economic, social and conservation benefits generated by avitourism. According to Kim, Keunig, Robertson and Kleindorfer (2010), avitourism is one of the largest sub-segments within the nature-based tourism sector.

Nature-based tourism has also been the focus for a while in southern Africa, for example, Spenceley (2003) contributed significantly to developing an assessment tool for managing sustainable tourism. More recently, Engelbrecht (2011) suggested critical success factors for managing the service experience of visitors to the Kruger National Park. Although these studies provide useful insights into managing operations within the nature-based market, they have not addressed the niche requirements of avitourists specifically.

Several market segmentations, based on motivations and preferences within the broader nature-based tourism market, have been proposed. For example, Lang and O’Leary (1997) suggested six clusters of nature-based tourists in Australia founded on their motivations and activity preferences. The clusters were: physical challenge seekers; family vacationers; culture and entertainment seekers; nature tourists; escape and relax vacationers; and indifferent travellers. Using seeking-escaping theory, Wolfe and Hsu (2004) found that six factors could explain differences in the motivations of tourists: escape personal worries; seek competition/recognition, seek entertainment/fun, seek interpersonal relations, escape crowds and seek family time. More recently, Park and Yoon (2009) found the following six factors to be useful in segmenting Korean consumers within the rural tourism market: relaxation, socialisation, learning, family togetherness, novelty and experience.

One of the most recent nature-based segmentation studies founded on motivation classified avitourism as a specialist activity or market segment of nature-based tourism. Arnegger, Woltering and Job (2010) suggested a framework that considers different motivational levels with the focus on nature as an attraction. According to this framework, birdwatching is classified as a mostly independent (not standardised) activity, with a focus on experiencing nature. Despite these studies, there has not been an extensive study on developing a quantitative measurement instrument that can be used to understand and distinguish between segments that describe the complex nature of the motivational dimensions of avitourists specifically.

With birding as one of the fastest-growing pastimes around the world, avitourism provides an opportunity to attract international avitourists to destinations worldwide. To capitalise on this opportunity, there is a need to explore international avitourism market information that could assist in advancing avitourism development. However, no strategy can be developed without an up-to-date understanding of consumer behaviour (Winer 2007: 88). Role-players such as governments, avitourism management and marketers of birding products are concerned with avitourist behaviour, as their tasks involve making and enabling decision-making or policy choice about avitourist activities (Pearce 2005: 6). If these role-players understand what prompts avitourists to leave their place of residence and travel to birding destinations, they may be able to develop approaches that help manage avitourists and assist them in planning more enjoyable experiences (Page 2007: 66).

There are several factors that influence avitourist behaviour. Motivation is only one component of a set of psychological processes, such as perception, learning, memory, and beliefs and attitudes that may contribute to explaining decision-making processes and purchase decisions of avitourists. Motivation has a fundamental influence on avitourist behaviour (Kotler & Keller 2009: 200; Cooper, Fletcher, Fyall, Gilbert & Wanhill 2008: 44). For effective planning, management and the development of programmes and products that dovetail with the needs of avitourists, a more thorough understanding of the factors that motivate avitourists is needed (Sali & Kuehn 2006: 318; Hvenegaard 2002: 21; Kellert 1985: 344). The results of previous research provide valuable insights into the various motivations of avitourists. For example, birders are motivated by enjoying the sight and sound of birds; seeing rare bird species; being outdoors; adding species to a list; taking photographs of birds; being with family and friends and meeting people who share the same interest (Sali & Kuehn 2006: 318; Scott, Ditton, Stoll & Eubanks 2005: 65; Hvenegaard 2002: 31, Scott, Baker & Kim 1999: 69; McFarlane 1994: 365; Kellert 1985: 348). In particular, Sali and Kuehn (2006: 320) used a qualitative approach to explore the motivations of birders, identified five categories of motivation (emotional, intellectual, physical, social and

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spiritual) and indicated a need for combining the results of their qualitative study with results from a quantitative study to provide stronger support for the results.

In reaction to this need, and building on the qualitative work of Sali and Kuehn (2006), this study reports on international quantitative research on avitourist motivation that was conducted at two international bird fairs, namely the British Birdwatching Fair (2008) in Rutland (England) and the Dutch Vogelfestival (2008) in Lelystad (the Netherlands). The purpose of this study was therefore confirmatory in nature, in an attempt to further develop and refine the motivational categories identified by Sali and Kuehn (2006) using a quantitative approach. Using confirmatory factor analysis (hereafter referred to as CFA), some of the psychometric properties of a quantitative measure of birder motivation were investigated. The dimensionality of the motivation of avitourists was investigated, and the plausibility of a higher-order model was investigated. Thereafter, a means and covariance structure analysis (Strasheim 2011) of birder motivation was performed on the data obtained in this study.

This article first provides a review of the literature, including avitourism context and definitions, and addresses the conceptualisation of travel motivation and motivational factors for avitourists. This part of the study is an attempt to uncover all the possible aspects that may be of importance when a measure of birder motivation is evaluated. Next, the empirical design and methods applied in conducting the research are discussed. These are followed by the data analysis and the CFA model for avitourist motivation. Finally, conclusions are made and recommendations for avitourism motivation are provided.

## Literature review

### Avitourism context and definitions

Definitions of avitourism provided in the literature include birding and birdwatching. According to Sekercioğlu (2002: 282), birding is defined as the act of observing and identifying birds in their native habitats. Birdwatching, or the birding activity, is referred to as 'avitourism' or 'birding tourism' if the birder undertakes a trip of a mile (1.6 km) or more from home for the primary purpose of observing birds in a natural setting (La Rouché 2003: 4; Lindsay, n.d.: 1). Avitourism is classified as a component of ecotourism that focuses specifically on birds and birdwatching, since it is expected to contribute to ecotourism's goal of enhanced conservation (Sekercioğlu 2002: 282; Hvenegaard 2002: 21). Kim et al. (2010) refer to avitourism as one of the largest sub-segments within nature-based travel. Backyard birding or watching birds around

the home is the most common form of birding, while birders who take trips away from home (for example away-from-home, non-residential birders or avitourists) participate in a more active form of birding.

In summary, avitourism is defined for the purposes of this article as being the activity of observing and identifying birds in their native habitats where the birder needs to take a trip away from home for the primary purpose of observing birds. Furthermore, it is a component of ecotourism that is focused specifically on birds and birdwatching as an activity and is also described as a sub-segment within nature-based travel. Lastly, avitourism excludes backyard birding, where the birder merely watches birds around the home, noticing birds while mowing the lawn or picnicking at the beach, or through trips to zoos or the observation of captive birds.

## **Conceptualisation of travel motivation**

Kotler, Bowen and Makens (2006: 69) define motivation as “a need that is sufficiently pressing to direct a person to seek satisfaction of that need”. Needs give rise to motivations when they are aroused to a sufficient level of intensity that drives the tourist to act (Kotler & Keller 2009: 202). Travel motivation is also referred to as “energising forces directed at meeting the tourist’s needs” (Hudson 2000: 7). Factors such as age, personality, stage in the life-cycle and lifestyle determine the motivations of individual tourists (Page 2007: 65; Swarbrooke & Horner 2007: 55). Motivators in travel are factors that motivate a tourist who wishes to purchase a particular product (Swarbrooke & Horner 2007: 51). The main tourism motivators include physical, emotional, personal, status, personal development and cultural motivators (Swarbrooke & Horner 2007: 54). Dann (1977, in Cooper et al. 2008: 46) distinguishes tourist motivation in terms of push (level of desire of tourists) and pull (to the destination or attraction) factors. The tourist is being pushed towards a holiday by the need (such as the need to escape, or status), while other factors may pull, or encourage, the tourist to travel to a specific destination, for example the scenery or the birdlife at the destination (Holloway 2006: 68).

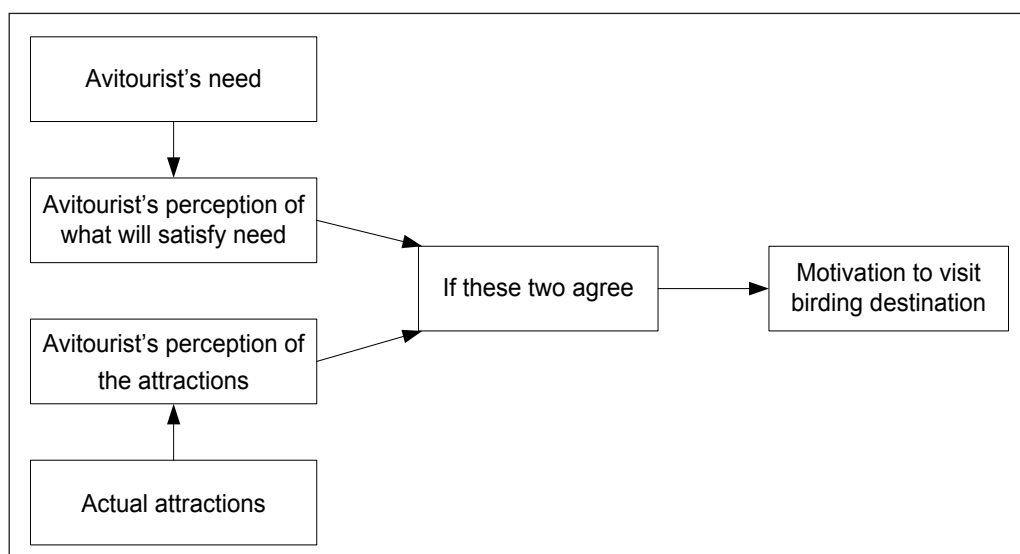
In 1997, Gnoth made a very useful theoretical contribution towards understanding the psychological processes of tourist motivation and the formations of expectations. More recently, Hsu, Cau and Li (2010) suggested a useful tourist behavioural model, which incorporates expectation, motivation and attitude, with motivation having a mediating effect on the relationship between expectation and attitude. The model was confirmed on a large sample (greater than 1500) of Chinese travellers.

In summary, travel motivation refers to the psychological processes that may contribute to explaining the decision-making processes and purchase decisions of

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tourists. It refers to a need that is sufficiently pressing to direct a person to satisfy that need, thereby energising forces directed at meeting the tourist's needs. Factors that determine different levels of motivation may include age, personality, stage in the life-cycle and lifestyle. Specific dimensions of tourism motivators may include aspects such as physical, emotional, personal, status, personal development and cultural motivators; and push (level of desire of tourists) and pull (to the destination or attraction) factors.

The process of translating a need into the motivation to visit a specific destination or to undertake a particular activity is demonstrated in Figure 1 (Holloway 2006: 67).



Source: Adapted from Holloway (2006: 67)

**Figure 1: The avitourist motivation process**

The motivation process illustrates that potential avitourists must not only recognise that they have a need, but also understand how a particular product will satisfy the need. As every individual is different, each person's perception of a holiday would also differ. Only if the perception of the need matches the attraction will an avitourist be motivated to buy the birding product. Avitourism managers and marketers need to learn about their clients' interests and needs and develop products that match these needs (Holloway 2006: 67). Since avitourism is described as a component of ecotourism and as a sub-segment within nature-based travel, the following section expands on the literature on travel motivations of ecotourists, nature-based tourists and avitourists.

## **Travel motivation of ecotourists, nature-based tourists and avitourists**

Previous studies provide valuable insights into the travel motivations of ecotourists, nature-based tourists and avitourists. Specifically, Holder and Sparrowhawk (2002: 435) determined in their study the intrinsic motivations of ecotourists (more specifically trekkers) visiting Annapurna, a well-known natural area in Nepal. The motivational factors were relaxation, thrills and excitement, social interaction, self-esteem, and development and fulfilment. Their results demonstrate that the highest level of importance is attached to 'relaxation' (Holder & Sparrowhawk 2002: 444). Furthermore, their results indicate that a typical trekker is intrinsically motivated by the medium of nature; thus enjoying nature, feeling and learning about it; and a desire for change from the daily routine, the need for stimulation and pursuing physical fitness were important motivations (Holder & Sparrowhawk 2002: 444). Using seeking-escaping theory, Wolfe and Hsu (2004) found that six factors could explain differences in the motivations of tourists, namely, escaping personal worries, seeking competition/recognition, seeking entertainment/fun, interpersonal relations, escaping crowds and seeking family time. Tao, Eagles and Smith (2004: 149) examined the travel motivation of the rapidly developing Asian ecotourism market in the context of domestic visitation to Taiwan's Taroko National Park. In their results, the means of importance ratings on benefits sought and travel motivations were compared; the most significant benefits sought by self-defined ecotourists were found to be 'learning about nature' and 'participating in recreation activities'. Both benefits were sought at significantly higher levels by the ecotourists than the general visitors (Tao et al. 2004: 157). Luo and Deng (2008: 392) examine the relationship between environmental attitudes and nature-based tourism motivations based on data gathered from a national forest park in China. Four dimensions were studied, namely, novelty/self-development, return to nature, knowledge/fitness, and escape. Novelty/self-development was found to explain the largest portion of total variance, followed by return to nature. More recently, Park and Yoon (2009) found the following six factors to be useful in segmenting Korean consumers within the rural tourism market: relaxation, socialisation, learning, family togetherness, novelty and experience.

In South Africa, national parks are considered as prime tourism destinations for nature-based and ecotourists. Kruger and Saayman (2010: 94) compared eight studies conducted on visitors to national parks or nature areas and identified the following recurring motives from previous literature: education/learning about nature, self-actualisation, participating in recreation activities, and social contact/enhancement of kinship. Furthermore, they determined and compared the travel

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motives of visitors to two national parks in South Africa. Their results suggested six factors of motives for visiting the Kruger National Park, namely, knowledge-seeking, activities, park attributes, nostalgia, novelty, escape and relaxation, while the data for the Tsitsikamma National Park also identified six factors (motives), namely, knowledge-seeking, nature experience, photography, escape and relaxation, park attributes and nostalgia (Kruger & Saayman (2010: 98). Another study by Saayman and Saayman (2009: 1) identified six motives for tourists travelling to the Addo Elephant National Park (South Africa), including nature, activities, family and socialisation, escape, attractions and photography. Furthermore, Slabbert and Du Plessis (2011: 1118) conducted a survey that included nine national parks in South Africa. Their results on travel motivations revealed five factors, including learning, relaxation, interpersonal motivators, site attributes and novelty. The highest mean value was obtained for relaxation.

South Africa is also well known for its golden beaches and coastline, which is more than 3500 km long. Van der Merwe, Slabbert and Saayman (2011: 457) determined the travel motives of tourists to five selected marine destinations in South Africa. The results revealed four travel motives, namely, destination attractiveness, escape and relaxation, time utilisation and personal attachment. These results confirm previous findings regarding escape and relaxation as travel motives when compared with other research. However, time usage and personal attachment were unique motives identified by this study, and were not identified in studies in the context of national parks.

The results of previous research provide valuable insights into the various motivations of avitourists:

- The most recent study on the birdwatching travel market by Kim et al. (2010: 227) provides an in-depth understanding of the distinctive characteristics and motivations of avitourists. The results indicated that the specialised birdwatchers were highly involved in birdwatching activities, and interested in endemic birds and bird trails, while general birdwatchers tended to combine birdwatching with other tourism activities and required good interpretation from experienced local guides and other tourism facilities.
- Sali and Kuehn (2006: 320) used a qualitative approach to explore the motivations of birders and identified five categories of motivation, including emotional (going outdoors and enjoying wildlife, enjoying the sight and sound of birds, relaxing and escaping), intellectual (studying bird behaviour and bird migration, improving bird identification skills, adding a bird to their bird list), physical (getting physical exercise), social (enjoying birds with family and relatives) and spiritual (connecting with nature or creation).



- Scott et al. (2005: 53) determined the efficacy of a self-classification measure of recreation specialisation in predicting other aspects of recreation participation (in this case, motivations). The two most important motivations were to enjoy the sights, smells and sounds of nature and to be outdoors; while moderate importance was assigned to activity-specific motivations, including seeing unique new species of birds. “To see bird species I have not seen before” and “to see as many bird species as possible” were indicated as important by respondents (Scott et al. 2005: 68).
- Eubanks, Stoll and Ditton (2004: 151) investigated birding motivations among various subgroups within the birding social world. The results indicate that there were group differences in motivational measures.
- Hvenegaard (2002: 21) developed a recreational specialisation framework for birders and examined how motivations vary among three specialisation measures, namely, novice, advanced-active and advanced-experienced. The results suggest that both advanced birder types were less interested in non-birding activities than novice birders.
- Scott et al. (1999: 50) investigated participants’ motivations for participating in the Great Texas Birding Classic event in New Jersey. The majority of participants did not perceive competition as a motivation; they participated because they enjoyed searching for birds, being with friends and contributing to wildlife conservation.
- McFarlane (1994: 362) explored the specialisation framework to examine the motivations of birders. The motivation factors used included affiliative, achievement, appreciative and conservation motivations for birders (McFarlane 1994: 365). Respondents in this study placed less emphasis on the achievement aspects of identification, listing and competition. Only advanced birders were associated primarily with the achievement motivation of improving birding skills and knowledge. The casual birder sought an appreciative experience of enjoying nature and the outdoors (McFarlane 1994: 367).

From the above discussion, the literature showed that nature-based tourists, ecotourists and avitourists have common as well as unique motives. Common motives include, for example, relaxation, a desire for change from the daily routine, escaping, enjoying nature/going outdoors/enjoying wildlife, education/learning about nature, seeking entertainment/fun, seeking interpersonal relations, seeking family time, participating in recreation activities, novelty/self-development/self-actualisation and destination attractiveness. Unique motives of avitourists include in the specific context of birdwatching, for example, enjoying the sight and sound of birds, improving bird identification skills, adding a bird to their bird list, seeing bird

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species not seen before, and improving birding skills and knowledge (see Table 1 for specific avitourist motivations).

The quantitative studies cited so far limited their discussions and analyses to first-order or lower-order dimensions of motivation. Among studies about travel motivations, none so far have investigated the plausibility of higher-order dimensions of motivation. Filep and Greencare (2007) suggested that higher-order dimensions might exist, but did not explore this in their data. The quantitative studies that have been cited made use of either principal component or exploratory factor analysis for determining the factors. This study attempts to build on previous exploratory work by using confirmatory approaches in analysing the importance of various motivational dimensions of pursuing birding activities, which allows the researcher to analyse the data in a more theory-driven approach.

## Research methods

### Population and sample

The population for the research that informed this article comprised international birders who attended the British Birdwatching Fair and the Dutch Vogelfestival in August 2008. Since a sampling frame of potential visitors to the two fairs was not available, the numbers of visitors attending both fairs in 2007 was used as a guideline, and the total population (N) was estimated to be approximately 27 000 bird fair attendees. The guidelines for determining sample size put forward by Cooper and Emory (1995: 207) and Krejcie and Morgan (1970: 608) were used. For a population size of 30 000, the recommended sample size is 379. The information reported in this article was provided by a total of 439 respondents (birders) visiting the British Birdwatching Fair (n=304) and the Dutch Vogelfestival (n=135) during August 2008.

A non-probability sampling method, purposive sampling, was used. With purposive sampling, as the name implies, respondents are chosen for a particular purpose (Neuman 2007: 142; Leedy & Ormond 2010: 212). The British Birdwatching Fair and Dutch Vogelfestival are annual events that are popular among international birding enthusiasts, and these events were chosen for the specific purpose of selecting an appropriate audience among the international birding population.

## Measuring instrument

The development of the questionnaire for avitourism motivation included a number of phases. Firstly, the study of Sali and Kuehn (2006) based on qualitative in-depth personal interviews was the primary study from which the set of statements was developed. Secondly, a review of the literature resulted in the possibility of more dimensions being identified. After the questions were developed, these were tested with a group of academic experts who are also active birders, and lastly, the final set of questionnaires was pre-tested among a group with varying interest in birdwatching.

Several researchers, such as McFarlane (1994: 362), Scott et al. (1999: 50), Hvenegaard (2002: 21), Eubanks et al. (2004: 151) and Scott et al. (2005: 53), examined various aspects of motivational factors for birders. Later, Sali and Kuehn (2006: 318) explored, through qualitative methods, the motivations of avitourists. These authors identified 24 specific aspects that motivated avitourists to participate in the birding activity and grouped these factors into five motivation categories, namely emotional, intellectual, physical, social and spiritual.

The five categories motivating avitourists to participate in the birding activity, as identified by Sali and Kuehn (2006: 321), were developed into items. These items, and their corresponding latent variables, were expanded from those of Sali and Kuehn (2006) to include suggestions from the scholarly work of Scott et al. (2005: 69), Eubanks et al. (2004: 164–165), Hvenegaard (2002: 31), Scott et al. (1999: 50) and McFarlane (1994: 365). These studies resulted in additional potential factors of birder motivation, and therefore additional dimensions were identified and items were developed for these dimensions, from an avitourist perspective, by the authors of this study.

The first set of items was tested by the researcher among four academic experts (Coetzer, Crosbie, Hugo and Milstein) (personal communication 2008) who were avid birdwatchers and familiar with the needs of international visitors to South Africa. They were requested to indicate the suitability of the pool of items, as well as the completeness of the set of items to measure birder motivation. Minor modifications were implemented on the basis of their recommendations.

Lastly, the questionnaire for the study was pilot-tested. In total, 14 birdwatchers were selected to complete the questionnaire. The questionnaire was also tested on a family of four that visited South Africa from the Netherlands at the time of the pilot test (July 2008). The selection of participants was based mainly on convenience and the participants' varying expertise with the birdwatching activity. The pilot responses were analysed, and additional changes were made to the wording of items that seemed problematic.

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The final list of items for measuring the motivational aspects of birders is shown in Table 1. These were used to test the motivations of birdwatchers visiting the British Birdwatching Fair and the Dutch Vogelfestival during 2008.

The birder motivation questionnaire consisted of 36 items to which respondents were requested to respond on a rating scale indicating the importance of each motivation on a scale ranging from 1 (irrelevant) to 5 (very important) when going on a birding trip.

## Data collection procedure

The data were collected by means of self-administered questionnaires that were distributed to birders at the BirdLife® South Africa (conservation and birding non-governmental organisation in South Africa) exhibition at the British Birdwatching Fair and the Dutch Vogelfestival. Bird fair organisers granted permission to distribute questionnaires from the BirdLife® South Africa stand at both these events. Respondents were selected on the basis of passing the stand, irrespective of their intention to visit the stand. In total, 439 useful responses were obtained, with 304 from the British Birdwatching Fair and 135 from the Dutch Vogelfestival.

## Statistical analysis

Confirmatory factor analysis (CFA) was employed to test whether the anticipated categories, as suggested in Table 1, could be fitted to the data. CFA based on a structural equation modelling (SEM) approach (Raykov & Marcoulides 2000) is a useful method for testing whether a factor analysis model, where the dimensions are postulated prior to data collection, fits the data well. This approach is also referred to as a strictly confirmatory approach. If this model does not fit well, researchers often use a model-generating approach, by investigating alterations to the initial model, until a reasonably well-fitting model that can be justified on theoretical grounds has been identified (Raykov & Marcoulides 2000). The power of a CFA approach is that it allows the researcher to evaluate how well the specified set of factors matches reality in terms of actual data (Hair, Black, Babin, Anderson & Tatham 2006: 774). CFA is thus an enabling tool that either confirms or rejects the preconceived theory (Hair et al. 2006: 774). The Analysis of Moment Structures (AMOS 20.0) was used as the statistical software for conducting the CFA.

**Table 1:** Dimensions of avitourist motivation determined from the literature review

<b>Emotional</b>	
B1	Enjoying the sight and sound of birds
B14	Contributing to the conservation of birds
B15	Being outdoors and enjoying wildlife and the natural environment
B17	Enjoying something that is fun, challenging and exciting
B19	Relaxing and escaping from everyday activities
<b>Intellectual</b>	
B3	Seeing new or rare species of birds
B5	Adding more birds to my life list
B6	Studying bird behaviour and bird migration
B7	Studying birds in their natural habitat
B8	Improving my bird identification skills
B9	Sharing my knowledge of birds with others
B2	Seeing as many bird species as possible
B4	Seeing many bird species not seen before
<b>Social</b>	
B16	Competing with other birders
B23	Being with friends
B24	Meeting new people with similar interests
B35	Being with family
<b>Spiritual</b>	
B11	Experiencing the peace that birding provides
B12	Connecting with nature or creation
B22	Renewing or refreshing my spiritual self
B29	Communing with nature
B13	Being alone at times
B26	Escaping from the demands of life
<b>Photography</b>	
B10	Photographing birds
B18	Taking unusual photos or videos of birds
B32	Photographing areas of natural beauty and wildlife
B34	Specialising in birdlife photography
<b>Exercise</b>	
B36	The physical exercise that goes with birding
B21	Getting out in the fresh air and exercising
B28	Walking in and experiencing natural habitats

Table continued

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Table 1 continued

Stimulation	
B20	Travelling to different places never visited before
B25	Visiting places of historical importance
B27	Seeing other places
B30	Seeing many interesting places apart from birding interests
B31	Visiting battlefields of interest
B33	Visiting places of unusual natural beauty

In the structural equation model (SEM) literature, a number of goodness-of-fit indices, which reflect the extent to which a model can be considered an acceptable means of data representation, are suggested. The goodness-of-fit indices that were used in this research (Hu & Bentler 1999; Raykov & Marcoulides 2000: 35–41) are listed and briefly discussed:

- Chi-square value (CMIN): The CMIN represents a test statistic of the goodness-of-fit model, and is used when testing the null hypothesis to establish whether the model fits the analysed covariance matrix perfectly. The smaller the CMIN value, the better the fit, since CMIN represents the total deviation of the proposed model (in terms of the model-implied covariance matrix) from the data (in terms of the observed covariance matrix).
- Degrees of freedom (df): According to Raykov and Macoulides (2000: 36), Popperian logic states that the primary interest of research is to reject models, rather than to confirm them, since there is no scientific way of proving the validity of a proposed model. If a model is not rejected, it stands as a possible model that could also be used to explain the observed in the data set. Usually models with fewer degrees of freedom are preferred, since the model is then more rigid. Models with too many degrees of freedom are not parsimonious, and they do not offer much in explaining the information in the observed covariance matrix. If a model with fewer degrees of freedom fits almost as well as one with many degrees of freedom, the model with the fewer degrees is preferred, since it offers an economical explanation, which is ultimately the purpose of a model, in order to simplify what was observed.
- $P > CMIN$ : This is the probability that the CMIN value exceeds the theoretical value. If a model fits the data perfectly, the CMIN will not be significant. However, this statistic is not relied upon by researchers, since it is overly sensitive to moderate deviations from the data (Hu & Bentler 1999).
- CMIN/df: Kline (in Lee & Scott 2004: 251) proposed that CMIN/df ratio values of less than 3 are considered favourable for sample sizes of 200 and more.

- Root mean square error of approximation (RMSEA): This evaluates the extent to which the model fails to fit the data. It is generally recommended that RMSEA should be less than 0.08 for reasonable fit, and less than 0.05 for good fit (Hu & Bentler 1999).
- Comparative fit index (CFI): The CFI is the ratio of improvement in non-centrality, moving from null to the proposed model, to the non-centrality of the null model. Thus, CFI, which ranges between 0 and 1, is also recommended to be greater than 0.90 to indicate reasonable fit, and greater than 0.95 for good fit (Hu & Bentler 1999).
- Tucker-Lewis index (TLI): TLI compares CMIN against a baseline model or the independence model, which assumes that all the covariances are zero. TLI indices should ideally be greater than 0.90 for acceptable fit, and greater than 0.95 for good fit (Hu & Bentler 1999).
- Incremental fit index (IFI): IFI also compares CMIN against a baseline model or the independence model, which assumes that all the covariances are zero. IFI indices should ideally be greater than 0.90 for acceptable fit, and greater than 0.95 for good fit (Hu & Bentler 1999).

The results of the various analyses are presented in the following section.

## Results

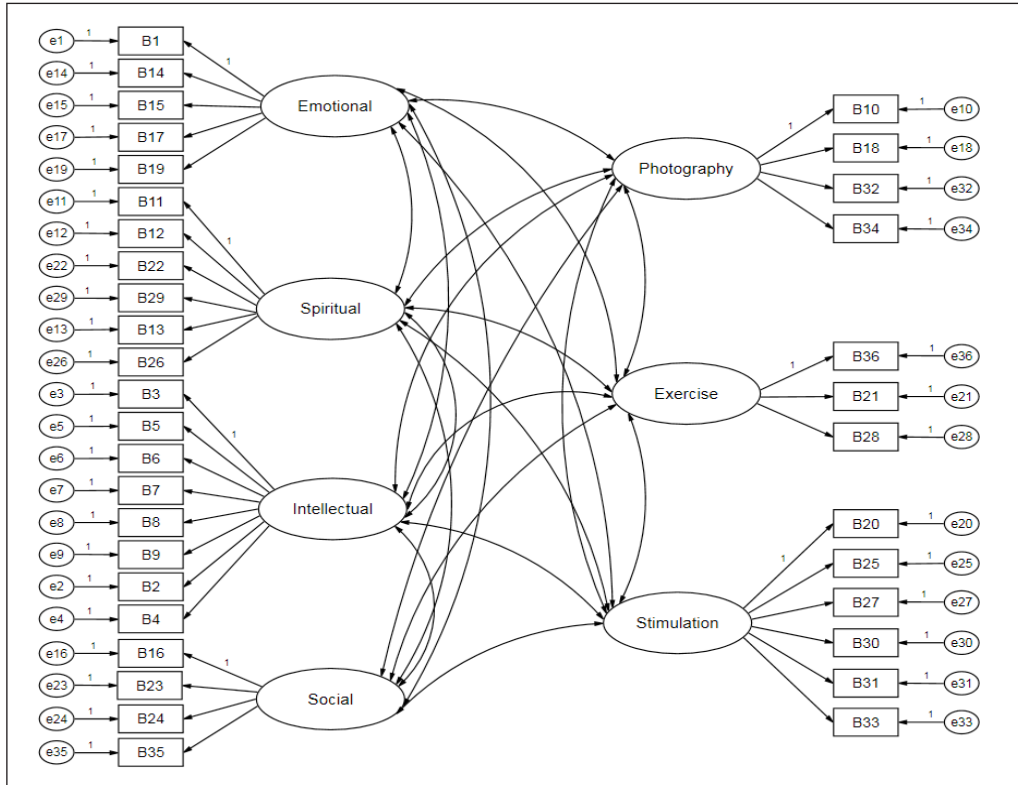
In the first analysis (Model 1) of the motivation of avitourists, a strictly confirmatory approach was used in which a model was postulated and evaluated. Since that type of initial analysis seldom fits the data well, a model-generating approach was adopted, resulting in Model 2, which offered a more plausible model. Model 2, a first-order confirmatory factor analysis model (1CFA), had several first-order latent variables, and since several of these latent variables were highly correlated, the possibility of using a higher-order factor model was investigated. One of the plausible models that could offer higher levels of motivational factors is presented as a second-order confirmatory factor analysis (2CFA) model in Model 3.

### Model 1: Initial factorial structure

The initial factorial structure shown in Table 1, as anticipated by the authors, was tested. In CFA, the theory comes first, and then the model is derived from theory. Figure 2 illustrates Model 1 as originally postulated by the authors, based on an

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extensive literature review of the factors underlying the motivation of international avitourists.



**Figure 2: Model 1 as originally postulated with respect to factors underlying avitourist motivation**

In Figure 2, the original model postulated in this study consisted of seven correlated latent variables, with indicator variables B1–B36 for the observed variables, e1–e36 for the error terms associated with the observed variables, and the seven factors for the latent variables. Finally, the model was tested for consistency with the observed data using a structural equation modelling (SEM) approach. For the purposes of model identification, the marker variable method (Strasheim 2011) was used to constrain one indicator variable of each factor equal to 1.0, and the corresponding intercept was constrained equal to zero. The goodness-of-fit measures (Raykov & Marcoulides 2000: 95) for Model 1 are shown in Table 2.



**Table 2:** Goodness-of-fit measures for Model 1

Model	CMIN	Df	P>CMIN	CMIN/df	RMSEA	CFI	TLI	IFI
Criteria for good fit	-	-	-	<3	<0.08	>0.90	>0.90	>0.90
Goodness-of-fit indices	2331.8	573	0.000	4.07	0.084	0.757	0.733	0.759

Model 1 did not fit the data very well. The CMIN/df ratio (4.070) was more than 3, which does not indicate a good fit. According to Hu and Bentler (1999), the RMSEA should ideally be below 0.05 for a good fit, and the upper limit of the 90% confidence interval of RMSEA should also be below 0.08 to indicate reasonable fit. Therefore, the RMSEA (0.084), with the lower and upper 90% confidence interval ranging between 0.080 and 0.087, indicated that the model does not fit the data satisfactorily at all. Similarly, CFI, TLI and IFI should be above 0.90 for acceptable fit, and above 0.95 for a very good fit. The CFI (0.757), TLI (0.733) and IFI (0.759) were all considerably smaller than 0.90, which also indicated that the model did not fit the data well at all. When these fit indices were considered, it was clear that Model 1 presented an unsatisfactory fit with the observed data. Thereafter, the researcher attempted a refinement of Model 1. The refinement procedure is discussed next.

## **Model 2: A first-order confirmatory factor analysis model for avitourist motivation**

In order to improve on Model 1, a model-generating approach was followed. Firstly, items with very low squared multiple correlations were excluded from the analysis, since they had little in common with the remaining items in the model. In generating the model, each of the factors was individually examined. It emerged that the 'Intellectual' factor could be split into two factors, namely 'Observing' birds and their behaviour, and 'Studying', which related to a deeper level of engagement in the intellectual activity than the mere observation of birds.

Furthermore, modification indices were studied, and where theoretically justified, additional path coefficients or covariances between measurement errors were included in the model. The modification indices suggested that a regression path be added between 'Stimulation' and item B32 ('Photographing areas of natural beauty and wildlife'). This resulted in item B32 becoming an indicator or having a cross-loading to two latent variables, namely 'Photography' and 'Stimulation', and since it made

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sense from the item content, the additional cross-loading path was included in the model. Modification indices further showed that the measurement errors  $e_{11}$  and  $e_{12}$  were correlated, as were  $e_{19}$  and  $e_{26}$ , as well as  $e_{32}$  and  $e_{33}$ . The corresponding items were B11 ('Experiencing the peace that birding provides') and B12 ('Connecting with nature and creation'). Since these items were adjacent in the questionnaire, and were measuring the same construct, it is conceivable that measurement errors could be correlated. Both items B19 ('Relaxing and escaping from everyday activities'), which according to the model was postulated to measure an aspect of emotional motivation, and B26 ('Escaping from the demands of life'), which was modelled to measure a spiritual dimension, share the word 'escape', which could explain the correlated error between the corresponding error terms in the model. The same argument could be followed for  $e_{32}$  and  $e_{33}$ , which correspond to items B32 ('Photographing areas of natural beauty and wildlife') and B33 ('Visiting places of unusual natural beauty'). Although these two items were initially considered to be associated with different first-order dimensions, the correlated errors are understandable. It would not have been possible to take photographs of natural beauty without visiting such places.

The final model (Model 2) comprised an eight-dimensional first-order confirmatory factor analysis model, as shown in Figure 3.

Model 2 postulates that at the first-order level, birder motivation is an eight-dimensional construct, with the following latent variables: *emotional*, *social*, *spiritual*, *exercise*, *observing*, *studying*, *stimulation* and *photography* as correlated dimensions. In this model, the *emotional* motivation construct is measured by two manifest variables (B15, B19); the *spiritual* construct by five items (B11, B12, B22, B29, B26); the *observation* construct by four questions (B3, B5, B2, B4); the *studying* construct by two variables (B6, B7); the *photography* construct by four items (B34, B32, B18, B10); the *exercise* construct by three variables (B28, B21, B36); the *stimulation* construct by four variables (B32, B33, B30, B27); and the *social* construct by two manifest variables (B23, B24) (refer to Table 1 for item wording).

Table 3 provides the goodness-of-fit indices of Model 2, shown in Figure 3.

When the eight-factor first-order model was fitted to the data, the goodness-of-fit supported the measurement model. The CMIN/df ratio (2.424) was less than 3, which indicated a good fit. The RMSEA (0.057) was smaller than 0.08 and fitted the model well. The CFI (0.937), TLI (0.923) and IFI (0.938) were all larger than 0.90, which provided evidence that the model fitted well. From the fit indices, it can be seen that Model 2 provides a significant improvement over Model 1 in representing the factors underlying the motivation of avitourists.

The maximum likelihood estimated regression weights (Table 4) for each indicator variable in Model 2 are highly significant. In addition, the estimated means and

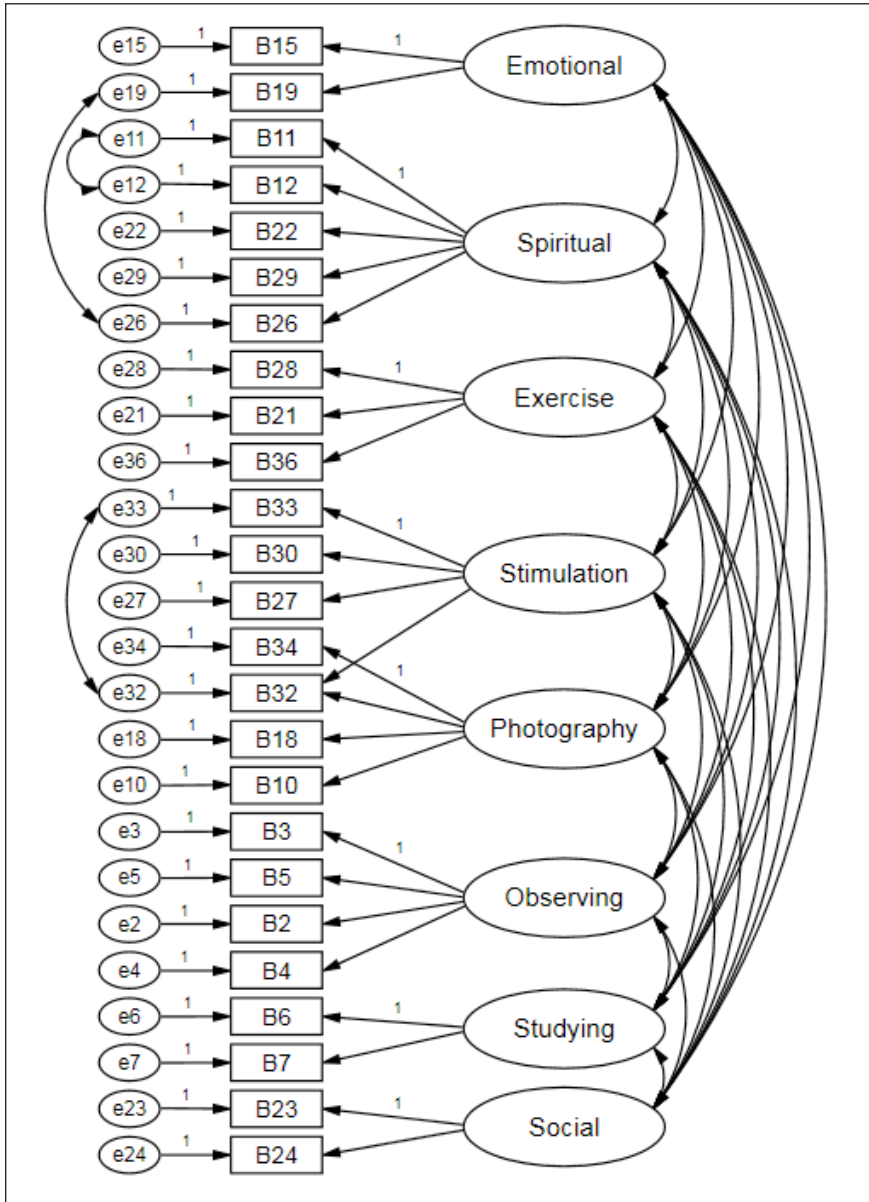


Figure 3: Model 2: An eight-factor first-order confirmatory factor analysis model for avitourist motivation

estimated covariances are provided in Table 5. The estimated correlations, obtained from the standardised output (in Table 6), are all positive, which is to be expected from a theoretical perspective.

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**Table 3:** Goodness-of-fit indices for Model 2

Model	CMIN	Df	P>CMIN	CMIN/df	RMSEA	CFI	TLI	IFI
Criteria for good fit	-	-	-	<3	<0.08	>0.90	>0.90	>0.90
Goodness-of-fit indices	588.9	243	0.000	2.424	0.057	0.937	0.923	0.938

Based on the results reported in Tables 3, 4 and 5, the focus in the following discussion is to explain the results of the ICFA model and the underlying relationships between the eight first-order dimensions.

The estimated maximum likelihood regression equations are all positive and large (Table 4). Some of the path coefficients were constrained equal to one, which is called ‘the marker variable method’ of model identification constraints (Strasheim 2011: 56). The advantage of using this method of constraints is that the results are more directly interpretable in the original metric, the five-point scale on which the items were measured, with the meanings 1=‘irrelevant’ and 5=‘very important’. All the regression coefficients are positive and significant, meaning that each of the indicator variables or items contributes towards measuring the specific latent variable of birder motivation. One coefficient is relatively small, the cross-loading item B32 (‘Photographing areas of natural beauty and wildlife’). Although this was significant, further discussion of the findings in the remaining section of this study suggests that the entire *photography* motivation could possibly be excluded as a motivational driver in further studies.

The model implied means from Table 5 show that the sample of birders generally seemed to perceive *emotional*, *spiritual*, *exercise* and *stimulation* motivational drivers to be important reasons for being involved with birding. The variability of scores on the importance of these four factors was also relatively small. This follows from interpreting the estimated variances (in the second column of Table 5). The results therefore suggest that the motivations *emotional*, *spiritual*, *exercise* and *stimulation* were consistently very important for all individuals. Motivational drivers that were moderately important were the activities associated with the *observation* and *studying* of birds, and the *social* aspects of being involved with birding. The variability of scores among the birders on these three dimensions was also slightly higher, as shown by the estimated variances of the three latent variables in the last column of Table 5. The least important motivation was *photography*, with an estimated mean of 2.7. The corresponding estimated variance is also the largest, showing that there was a large degree of variability among the sample in how they viewed the importance of photography as a motivational driver to be involved with birding. This finding

suggests that, on average, photography does not seem to be an important motivational driver for the international avitourist.

**Table 4:** Maximum likelihood estimated regression weights

			Estimated regression weight	Significance	Standardised regression weight
B15	<input type="checkbox"/>	Emotional	1.000	-	0.604
B19	<input type="checkbox"/>	Emotional	1.545	***	0.655
B11	<input type="checkbox"/>	Spiritual	1.000	-	0.644
B12	<input type="checkbox"/>	Spiritual	1.168	***	0.730
B22	<input type="checkbox"/>	Spiritual	1.588	***	0.756
B29	<input type="checkbox"/>	Spiritual	1.391	***	0.820
B26	<input type="checkbox"/>	Spiritual	1.200	***	0.655
B28	<input type="checkbox"/>	Exercise	1.000	-	0.753
B21	<input type="checkbox"/>	Exercise	1.079	***	0.709
B36	<input type="checkbox"/>	Exercise	1.209	***	0.614
B33	<input type="checkbox"/>	Stimulation	1.000	-	0.665
B30	<input type="checkbox"/>	Stimulation	1.174	***	0.693
B27	<input type="checkbox"/>	Stimulation	1.074	***	0.741
B32	<input type="checkbox"/>	Stimulation	0.486	***	0.211
B34	<input type="checkbox"/>	Photography	1.000	-	0.893
B32	<input type="checkbox"/>	Photography	0.733	***	0.688
B18	<input type="checkbox"/>	Photography	1.003	***	0.885
B10	<input type="checkbox"/>	Photography	0.949	***	0.879
B3	<input type="checkbox"/>	Observing	1.000	-	0.871
B5	<input type="checkbox"/>	Observing	0.980	***	0.621
B2	<input type="checkbox"/>	Observing	0.923	***	0.759
B4	<input type="checkbox"/>	Observing	0.893	***	0.804
B6	<input type="checkbox"/>	Studying	1.000	-	0.804
B7	<input type="checkbox"/>	Studying	0.871	***	0.826
B23	<input type="checkbox"/>	Social	1.000	-	0.739
B24	<input type="checkbox"/>	Social	0.958	***	0.740

**Table 5:** Estimated means and variances of first-order latent variables

	Means	Variances
Emotional	4.554	0.152
Spiritual	3.987	0.378
Exercise	4.207	0.309
Stimulation	4.023	0.308
Photography	2.714	1.443
Observing	3.854	0.629
Studying	3.412	0.682
Social	3.396	0.629

The estimated correlations in Table 6 suggest that there are very strong positive correlations between the four most important motivational drivers, namely, between the *emotional*, *stimulation*, *spiritual* and *exercise* dimensions. This could be interpreted in two ways, one is that they represent a single construct, or that they emanate from a higher-order construct, which is investigated in Model 3 in this study. From Table 6, it can also be noted that the *photography* dimension did not correlate strongly with any other construct, thereby suggesting that it does not really fit with birder motivation.

Although Model 2 provides an adequate explanation of the factors underlying avitourist motivation, the many covariances between the first-order latent variables are cumbersome to interpret. In order to further simplify the relationships between the latent variables, several second-order models based on the first-order latent variable means and correlations shown in Tables 5 and 6 were evaluated using model adequacy (in terms of model fit) and substantive and theoretical soundness as criteria. This resulted in a plausible second-order confirmatory factor analysis model that may further simplify the motivation of birders in terms of fewer higher-order factors.

### **Model 3: A second-order confirmatory factor analysis model for avitourist motivation**

A further explanation of the first-order factors in terms of higher-order factors would be helpful to further simplify the understanding of birder motivation. An inspection of the correlation coefficients in Table 6 indicates that several of the first-order constructs are highly correlated, which suggests that they possibly emanate from a similar higher-order motivation. The four constructs that have high correlations between them were *emotional*, *spiritual*, *exercise* and *stimulation*. These four constructs are postulated in the second-order model to emanate from a higher-order motivation of general *wellbeing*. The activities of *observing* and *studying* birds

**Table 6:** Estimated correlations\* between first-order latent variables

Estimated correlations			Estimate
Emotional	□	Exercise	0.932
Spiritual	□	Exercise	0.905
Spiritual	□	Emotional	0.819
Exercise	□	Stimulation	0.816
Spiritual	□	Stimulation	0.663
Emotional	□	Stimulation	0.636
Social	□	Exercise	0.631
Social	□	Spiritual	0.589
Social	□	Stimulation	0.529
Social	□	Emotional	0.457
Emotional	□	Studying	0.352
Social	□	Studying	0.304
Exercise	□	Studying	0.288
Photography	□	Stimulation	0.268
Spiritual	□	Photography	0.252
Stimulation	□	Observing	0.250
Spiritual	□	Studying	0.248
Studying	□	Observing	0.243
Stimulation	□	Studying	0.207
Photography	□	Emotional	0.170
Photography	□	Observing	0.163
Social	□	Photography	0.161
Photography	□	Exercise	0.154
Social	□	Observing	0.152
Exercise	□	Observing	0.111
Photography	□	Studying	0.094
Emotional	□	Observing	0.039
Spiritual	□	Observing	0.000

\* Correlations obtained from standardised output

and their behaviour were modelled to be emanating from a higher-order dimension relating to *intellectual* needs. Lastly, the *photography* and *social* dimensions were not particularly strongly associated with any of the other remaining constructs, and the correlation between these two dimensions was also low. The result was that each

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of these two factors had a single first-order factor emanating from a single second-order factor. It would not be statistically plausible to keep these two factors as part of the model if they were not modelled as higher-order factors. Therefore, the *photography* and *social* dimensions were modelled to emanate from a second-order construct loading on itself with no error. The error variances  $f_5$  and  $f_8$  were therefore constrained equal to zero. During the model estimation, the error variance of  $f_3$  was negative, and this resulted in non-admissible results. In order to prevent this, the error variance was constrained to a small positive number equal to 0.02.

The model presented as Model 3 in Figure 4 is useful in explaining deeper levels of needs or factors that may underlie the motivation and behaviour of avitourists. These factors are suggested to be *wellbeing*, *intellectual*, *social* and *photography*.

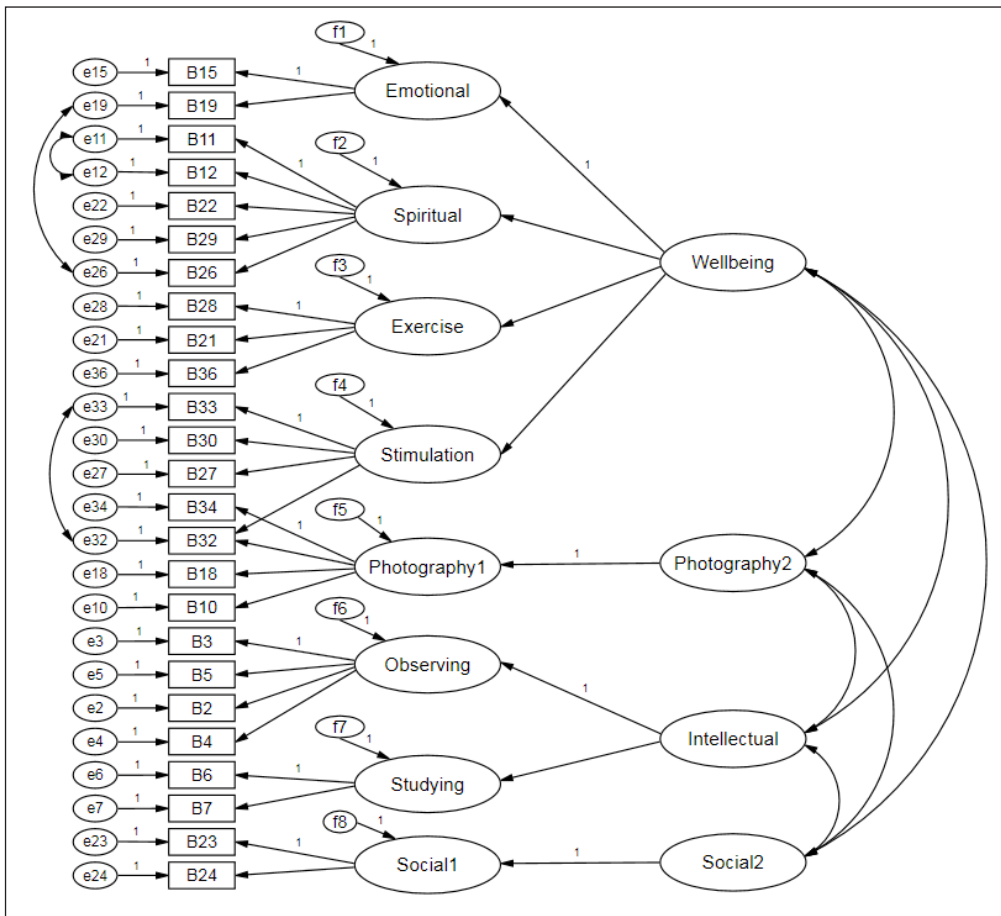


Figure 4: A second-order confirmatory factor analysis model of avitourist motivation



According to this model, four first-order factors, namely *emotional*, *spiritual*, *exercise* and *stimulation* motivations, emanate from a second-order dimension relating to a motivation that could be explained by a search for *wellbeing* as a motivational drive. In this model, the first-order construct of *emotional* wellbeing was indicated by two variables (B15, B19), while the first-order construct of *spiritual* wellbeing was indicated by six items (B11, B12, B22, B29, B26). The first-order construct, which was named *exercise* and could also be viewed as physical wellbeing, was indicated by three variables (B28, B21, B36), while *stimulation* as a first-order construct could be viewed as an aspect of mental wellbeing, indicated by (B33, B30, B27, B32). The second-order motivational construct of *intellectual* activity had two first-order factors, which included a dimension related to *observation*, while the other first-order construct seems to be more related to the *studying* of birds and their behaviours. The *observation* construct was measured by four manifest variables (B3, B5, B2, B4) and the *studying* construct by two variables (B6, B7). The *photography* construct was measured by four manifest variables (B34, B32, B18, B10), whereas the *social* construct was indicated by two items (B23, B24).

Table 7 provides the goodness-of-fit indices of the second-order CFA model, Model 3.

**Table 7:** Goodness-of-fit indices for 2CFA Model 3

Model	CMIN	Df	P>CMIN	CMIN/df	RMSEA	CFI	TLI	IFI
Criteria for good fit	-	-	-	<3	<0.08	>0.90	>0.90	>0.90
Goodness-of-fit indices	660.3	260	0.000	2.54	0.059	0.927	0.916	0.928

When the second-order model was fitted to the data, the goodness-of-fit supported the measurement model. The CMIN/df ratio (2.54) was less than 3, which indicated a good fit. The RMSEA (0.059) was smaller than 0.07 and fitted the model adequately. The CFI (0.927), TLI (0.916) and IFI (0.928) were all larger than 0.90, which provided evidence that the model fitted satisfactorily. The overall goodness-of-fit of the second-order CFA was almost as satisfactory as the first-order model, and since this model is more parsimonious, it offers a more simplified explanation of birder motivation than Model 2. A second-order model will always provide a fit that is at least as good as the corresponding first-order model, or it will fit worse, since it is more restricted (Strasheim 2011). However, the added simplicity of a higher-order model is appealing, especially in this situation, since the relationships between

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the higher levels of avitourist motivation can be reduced from eight first-order dimensions to four second-order dimensions, which simplifies the understanding the model substantially, especially when the interrelations or correlations between the motivations are interpreted.

The interpretation of Model 3 warrants detailed attention. According to Model 3, avitourist motivation emanates from higher-order needs, namely *wellbeing* needs, *photography*, *intellectual* needs and *social* needs. *Wellbeing* is a higher-order need with the underlying dimensions of *emotional*, *spiritual*, *exercise* and *stimulation* needs at the first-order level. The higher-order *intellectual* need is associated with the activities of *observing* and *studying* birds at a first-order level. The *photography* and *social* higher-order dimensions were modelled as 'pseudo' higher-order variables, which was a mathematical requirement for the analysis to proceed and can therefore strictly speaking not really be interpreted as second-order motivations. This provides further support that the *photography* dimension is possibly not part of birder motivation at all. However, whether the *social* dimension is part of the motivational construct is not as clear, as will become evident when the estimated correlations in Table 10 are interpreted. The results indicate that birder motivation has only two higher-order levels, firstly a need for *wellbeing*, and secondly an *intellectual* need, and possibly a third higher-order dimension of a *social* need, although this aspect might require further investigation in future studies of avitourist motivation.

The second-order model parameter estimates in Table 8 show the relative weight of each of the eight dimensions on the higher-order dimensions representing avitourist motivation. The estimates of each parameter of Model 3 indicate that all the estimated regression coefficients are highly significant, and the estimated means and variances and estimated correlations have signs that make sense from a theoretical perspective. From Table 9, *wellbeing* seems to be the most important higher-order factor, followed by the intellectual aspects of birding. The *social* dimension is not unimportant, but not as important as the other aspects of birding. Lastly, the *photography* dimension does not seem to be an important aspect of birder motivation.

When the estimated correlations are considered in Table 10, it is clear that the *wellbeing* and *social* dimensions are fairly highly correlated (0.663), and the *photography* dimension is not strongly correlated to any other construct, suggesting that *photography* is not related to other aspects of birder motivation, and could possibly be excluded from a scale intended to measure different aspects of birder motivation in future studies.

Lastly, the internal consistency reliability was assessed for all the factors in both the second-order and first-order dimensions of Model 3. Table 11 provides the Cronbach's alpha coefficient reliability statistics for each dimension.

**Table 8:** Maximum likelihood estimated regression weights of Model 3

			Estimated regression weight	Significance	Standardised regression weight
Emotional	□	Wellbeing	1.000	-	0.888
Spiritual	□	Wellbeing	1.684	***	0.909
Exercise	□	Wellbeing	1.634	***	0.967
Stimulation	□	Wellbeing	1.303	***	0.775
Observing	□	Intellectual	1.000	-	0.357
Studying	□	Intellectual	2.093	0.005	0.696
Social1	□	Social2	1.000	-	1.000
Photography1	□	Photography2	1.000	-	1.000
B24	□	Social1	0.934	***	0.731
B23	□	Social1	1.000	-	0.749
B29	□	Spiritual	1.401	***	0.821
B22	□	Spiritual	1.592	***	0.754
B12	□	Spiritual	1.167	***	0.725
B11	□	Spiritual	1.000	-	0.641
B10	□	Photography1	0.949	***	0.880
B18	□	Photography1	1.000	***	0.884
B32	□	Photography1	0.732	***	0.696
B34	□	Photography1	1.000	-	0.894
B26	□	Spiritual	1.231	***	0.664
B15	□	Emotional	1.000	-	0.575
B19	□	Emotional	1.708	***	0.691
B36	□	Exercise	1.262	***	0.643
B21	□	Exercise	1.112	***	0.733
B28	□	Exercise	1.000	-	0.750
B27	□	Stimulation	1.054	***	0.728
B30	□	Stimulation	1.195	***	0.706
B33	□	Stimulation	1.000	-	0.665
B7	□	Studying	0.827	***	0.805
B6	□	Studying	1.000	-	0.825
B5	□	Observing	0.991	***	0.625
B2	□	Observing	0.928	***	0.759
B3	□	Observing	1.000	-	0.866
B4	□	Observing	0.901	***	0.807
B32	□	Stimulation	0.515	***	0.226

\*\*\* a <0.001

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**Table 9:** Estimated means and variances of second-order latent variables of odel 3

	Means	Variances
Wellbeing	4.554	0.109
Intellectual	3.854	0.079
Social2	3.396	0.645
Photography2	2.714	1.446

**Table 10:** Estimated correlations between second-order latent variables of 2CFA Model 3

			Estimated correlations
Wellbeing	□	Social2	0.633
Intellectual	□	Social2	0.426
Intellectual	□	Wellbeing	0.384
Wellbeing	□	Photography2	0.226
Intellectual	□	Photography2	0.192
Social2	□	Photography2	0.160

**Table 11:** Cronbach's alpha for first-order and second-order constructs of Model 3

Second-order constructs	Number of items	Cronbach's alpha
Wellbeing	14	0.893
Intellectual	6	0.773
<b>First-order constructs</b>		
Emotional	2	0.539
Spiritual	5	0.847
Exercise	3	0.726
Stimulation	3	0.740
Photography	4	0.915
Observing	4	0.834
Studying	2	0.791
Social	2	0.707
<b>All motivational dimensions</b>	<b>25</b>	<b>0.877</b>
<b>All motivational dimensions excluding photography</b>	<b>21</b>	<b>0.874</b>

In Table 11, most factors are shown to have acceptable levels of internal consistency, with most of the alpha values above the minimum level of 0.7 suggested by Peterson (1994). The only dimension with a lower reliability is the *emotional* dimension, but since this construct had only two items loading on to it, the value is not considered to be too low, since Wolfe and Hsu (2004) also reported a factor with a Cronbach's alpha of 0.54 as a factor of motivation. The higher-order dimensions all have good reliability with *wellbeing* (0.893) and *intellectual* (0.773). When all 25 items are considered as a possible overall measure of birder motivation, the Cronbach's alpha is 0.877, and when the *photography* items are excluded, the reliability does not change much. This further supports the possible exclusion of photography as an aspect of birder motivation.

The results suggest that the proposed second-order CFA model of avitourist motivation may be very useful for measuring the psychological needs of birders. The results suggest that birder motivation can be conceptualised at a higher-order level as having four interdependent motivational drivers, comprising *wellbeing* (in terms of emotional, spiritual, physical and mental stimulation wellbeing), *intellectual* activity (consisting of observing and studying) and two simple factors (consisting of photography and social interaction) in avitourism. It may also be useful to further simplify the measure by excluding the *photography* dimension.

## Discussion and recommendations

This study provides an evaluation of a quantitative multidimensional measure of birder motivation that may be used for understanding the motivational aspects that are of importance to birders. In total, eight first-order motivations, emanating from four higher-order motivations, were found to explain birder motivation based on a substantial sample of birders.

The results indicated that *wellbeing* (4.554) is the most important higher-order motivation. According to Kangas and Tuohino (2008), wellbeing has become an important topic in tourism research and tourism business, and the concepts of wellbeing and wellness have established their standing in tourism terminology. Wellbeing tourism is seen as an entity that includes diverse products and services, which aim to promote and maintain holistic wellbeing, meaning wellbeing of body, mind and soul (Konu 2010: 42). The results of this article suggest that the wellbeing motivation of birders consists of the four lower-order dimensions of wellbeing, namely emotional, spiritual, physical exercise and mental stimulation motivations, which were consistently rated very important to birders. These first-order dimensions are now discussed with possible practical suggestions on how the avitourism industry could utilise the information.

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*Emotional* aspects of birding, such as being outdoors and enjoying wildlife and the natural environment; enjoying the sight and sound of birds, relaxing and escaping from everyday activities, were regarded as very important by birders. These results were consistent with the literature (Sali & Kuehn 2006: 318; Scott et al. 2005: 65; Eubanks et al. 2004: 151; McFarlane 1994: 365), which revealed that emotional aspects were the most commonly found category of birder motivation. As pointed out in the literature review, nature-based tourists, ecotourists and avitourists have common as well as unique motives. These results also confirm this statement, as common motives, such as being outdoors, relaxing and escaping, are regarded as important by nature-based tourists, ecotourists and avitourists (Van der Merwe et al. 2011: 457; Kruger & Saayman 2010: 94; Saayman & Saayman 2009: 1; Slabbert & Du Plessis 2011: 1118; Park & Yoon 2009; Luo & Deng 2008: 392). In planning and developing avitourism products, emotional aspects could be enhanced by making provision for birders to alight from their vehicles and walk in the natural environment. To experience the sight and sound of birds, the avitourism industry could further promote practical, easily understood bird guide books and bird sound CDs. Information on where to find various bird species in specific parts of the country in their natural habitats in various biomes would enable birders to enjoy the sight and sound of birds. From a marketing perspective, it is recommended that photographs are included on websites or posters at birdfairs showing birders enjoying wildlife and birds in their natural environment. The large number of bird species found in South Africa should be promoted, and photographs of rare species could be included on websites and brochures. Marketing material could create an atmosphere of relaxing and escaping to the African bush.

The *exercise* that birding provides was regarded as an important motivation for birding, as long as the exercise is combined with the natural environment and fresh air. Sali and Kuehn (2006: 321) also indicated 'getting physical exercise' as a motivational factor of birders. The results are also consistent with Luo and Deng (2008: 392) and Holder and Sparrowhawk (2002: 435), who identified fitness as an important nature-based tourism motivation. It is recommended that birding products include walking in and experiencing the natural habitat, giving birders the opportunity to exercise in the fresh air. Websites and brochures could communicate this motivator by showing photographs of birders walking in the natural environment.

The *mental stimulation* facilitated by visiting places of unusual natural beauty and seeing many interesting places apart from specific birding interests was also highlighted as an important consideration for birders. In the study of Sali and Kuehn (2006: 323), a significant proportion of the interviewees also mentioned the aspect of seeing different places and visiting interesting places. It could therefore be

recommended that highlighting what is unusual and different about South Africa could lead to meaningful marketing of avitourism products in South Africa. Sites of interest and unusual products unique to South Africa near birding sites should be mentioned in the marketing material.

*Spiritual* aspects, such as connecting with nature or creation or experiencing the peace that birding provides, were slightly less important than emotional, exercise and mental stimulation aspects. These results were consistent with the findings of Sali and Kuehn (2006: 322), as some interviewees mentioned communing with nature and experiencing the peace that birding provides as birding motivators. It could be recommended to include solitude times as part of a guided birding tour to give the avitourist opportunities to connect with nature and experience the peace of the South African bush. Avitourism products could also include activities to help birders connect with nature, for example, using a branch to sweep a dry riverbed at night and reading the spoor in the morning of fauna that passed through during the night.

After *wellbeing*, the results of this article showed the *intellectual* (3.854) motivational driver to be the second most important higher-order motivation. This result is consistent with travel motivations mentioned in previous studies, such as learning about nature, education and knowledge-seeking (Slabbert & Du Plessis 2011: 1118; Kruger & Saayman 2010: 98; Park & Yoon 2009; Tao et al. 2004: 14).

This finding is also consistent with the characteristics of the new tourist, who is more educated, experienced, sophisticated and knowledgeable, and these attributes are reflected in the kind of experience they seek, their behaviour and preferences (Yeoman 2008: 37; Buhalis 2001: 84). The literature also indicated intellectual activity as a motivational driver of avitourists (Sali & Kuehn 2006: 318; Scott et al. 2005: 65; Eubanks et al. 2004: 151; Hvenegaard 2002: 31; Scott, Baker & Kim 1999: 69; McFarlane 1994: 365), while in the results of this article it emerged that the *intellectual* factor could be split into two dimensions, including observing and studying birds. Birders rated these first-order dimensions to be moderately important.

Aspects of importance in *observing* birds included seeing bird species never seen before and seeing rare birds. From a marketing perspective, clear communication on the number of bird species and rarity of the particular birds is recommended. For example, a link could be included on the website entitled, "What does South Africa have that you won't find anywhere else in the world?" From a planning and product-development perspective, it could be recommended that birding sites should have updated bird lists available, and avitourism managers could also have a book or information board where birders can share interesting sightings with other birders to increase their chance of seeing many bird species or rare birds.

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Improving bird identification skills and studying birds in their natural habitats were important aspects in the dimension of *studying* birds. Avitourism managers could therefore incorporate a learning component into the birding product. Interpretation, for example, of the behaviour or migration patterns of different bird species found at the site could play a valuable role in this regard. From a product development perspective, interpretation is important, for example, communicating relevant information on boards or posters in a bird-hide facility in a user-friendly format. It is also recommended that birders are allowed sufficient time to study the information before moving them on. Bird guides should also be prepared from a well-educated and informed perspective, and should be able to provide interesting information about the birds, their habitat and behaviour, as well as general information about the area and South Africa. From a marketing perspective, websites, brochures and newsletters could provide opportunities to learn something new and interesting, even before the trip starts.

The results of this article indicate the third higher-order motivation as the *social* (3.396) motivational driver, which was slightly less important than intellectual motivation. Social factors, such as family togetherness, socialisation and interpersonal motivators, were also mentioned in the literature (Slabbert & Du Plessis 2011: 1118; Saayman & Saayman 2009: 1).

Social aspects, such as being with friends and meeting new people with similar interests, were rated moderately important. Similar to other studies (Sali & Kuehn 2006: 318; Scott, et al. 2005: 65; Eubanks et al. 2004: 151; Scott, Baker & Kim 1999: 69; McFarlane 1994: 365), the social aspect of birder motivation was slightly less important than emotional and intellectual motivations. These results are consistent with new tourism trends, as tourism demand is changing and moving towards a new type of activity in which the individuality and independence of the tourist are becoming increasingly important (Goeldner & Ritchie 2009: 584; Yeoman 2008: 37; Buhalis 2001: 71). It is therefore recommended that smaller groups of birders be accommodated on birding tours and tailor-made birding experiences promoted. Websites and marketing material could indicate opportunities to meet with like-minded birders in small, intimate, tailor-made environments.

The results of this article suggest that the last higher-order motivation, the *photography* (2.714) motivational driver, is the least important motivation for birding. Based on these results, bird photography can be considered to be a highly specialised activity, and further research on this niche market is recommended.

It can be recommended that the three most important higher-order constructs, namely wellbeing, intellectual and social activity, are important motivating factors that can be used in product development and marketing communications to



creatively attract avitourists. Tapping into these dimensions in advertising appeals and marketing efforts for specific birding tours could be more effective than, for example, emphasising photography aspects. Furthermore, it is recommended that niche markets such as the avitourism market could be incorporated in the general tourism marketing strategies of South Africa. A link to the official website of BirdLife® South Africa could, for example, be added to the South African Tourism website. Furthermore, it would be useful to have a ‘one-stop’ search facility for registered providers of birding experiences on the BirdLife® South Africa website.

Table 12 presents the motivational factors that were found to be useful in other nature-based destinations, most of which were based in South Africa. The means of the factors are shown in order of importance. In the last column of the table, the higher-order dimensions that may be consistent with those found in this study are suggested for possible further investigation. It is interesting to note that the order of importance seems to be almost consistently for visitors to South African National Parks to be firstly *wellbeing*, secondly *social*, thirdly *intellectual* and fourth *photography*. The Norwegian study by Mehmetoglu (2005) found the factors to be firstly intellectual, followed by wellbeing and social, which could be due to a different context.

Furthermore, no previous study could be found that was specifically developed for the quantitative measurement of motivations of the niche avitourist market, in order to specifically distinguish between segments within this niche market. The purpose of this study was also confirmatory in nature in an attempt to further develop and refine the motivational categories identified in previous literature. Using CFA, some of the psychometric properties of a quantitative measure of birder motivation were investigated. The dimensionality of the motivation of avitourists was investigated, and the plausibility of a higher-order model was investigated. The unique contribution of this study is therefore the quantitative measurement instrument and the suggested higher-order motivations of *wellbeing*, *intellectual*, *social* and *photography* that were found to explain birder motivation (see Figure 4, Model 3).

As mentioned by Wolfe and Hsu (2004), the motivation of tourists is an integral part of the consumer behaviour expressed by tourists. Other studies found links between motivation and the selection of destinations. Furthermore, motivations form an integral part of the decision-making process, and motivation has also been found to mediate the relationship between expectations and attitude towards the chosen destination. The relationship between expectation, motivation and attitude is succinctly described by Hsu et al. (2009: 284–285), who state that “an individual’s motivation to perform a certain activity is a function of the expectation that he or she will be able to perform the activity and obtain the desired outcomes, and the personal

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**Table 12:** Possible higher-order motivational factors and the means in previous studies

Study			Means	Order	Category*
<b>This study</b>			5-point		
UK and Dutch birdwatchers			n=439		
Emotional			4.554	1	W
Exercise			4.207	2	W
Stimulation			4.023	3	W
Spiritual			3.987	4	W
Observing			3.854	5	I
Studying			3.412	6	I
Social			3.396	7	S
Photography			2.714	8	P
<b>Kruger &amp; Saayman (2010: 98)</b>			5-point		
National park visitors (SA)			n=2728		
Escape and relax			4.213	1	W
Nostalgia			3.435	2	W
Knowledge-seeking			3.006	3	I
Park attributes			2.807	4	
Novelty			2.772	5	I
Activities			1.539	6	
<b>Saayman &amp; Saayman (2009: 5)</b>			5-point		
National parks (SA)			n=607		
Escape			3.83	1	W
Photography			3.11	2	
Family			2.98	3	S
Nature			2.88	4	I
Attractions			2.81	5	I
Activities			1.74	6	
<b>Botha (2011: 74–75)</b>			5-point		
National parks (SA)			n=468		
Relax and socialise			3.5	1	W/S
Attractions and facilities			3.1	2	
Nature and wildlife			3.0	3	I
Knowledge-seeking			2.9	4	I
Photography			2.8	5	P
Park activities			1.8	6	

Table continued

Table 12 continued

<b>Mehmetoglu (2005: 363, 365)</b>	High experience	Low experience	Weighted mean		
Norwegian nature lovers	n=29	n=131	160		
Novelty/learning	4.39	4.03	4.10	1	I
Nature	4.63	3.88	4.02	2	W/I
Social	3.57	3.84	3.79	3	S
Mundane/everyday	3.99	3.68	3.74	4	
Ego/status	3.31	2.90	2.97	5	
Physical activities	3.00	2.45	2.55	6	W
<b>Van der Merwe et al. (2011: 464)</b>			5-point		
Coastal or marine destinations			n=1 136		
Time utilisation			4.16	1	
Destination attractiveness			3.42	2	
Escape and relaxation			2.90	3	W
Personal attachment			2.13	4	

\* W=wellbeing, I=intellectual, S=social, P=photography

value of all outcomes associated with that activity”. Armed with the knowledge of what motivates a specific target segment, marketers and nature-based tourism organisations can influence motivation by manipulating the messages that shape the expectations of birders, and thereby also the outcomes after visiting the birding destination.

Motivation assessment could also be useful in predicting demand, and in making sure that all the needs of avitourists are met. While it is generally assumed that conscious and subconscious motives affect human behaviour, the role of marketers is to stimulate the motivations, thereby luring consumers into satisfying their needs. Managers of avitourist destinations need to be prepared for the needs, and understand the relative importance of these needs, in order to tailor a service experience that addresses these needs. Lastly, conservation and birding non-governmental organisations, such as BirdLife® South Africa, could use birder motivation for decision-making with regard to the relative importance of infrastructure developments and policies that will allow the development of the avitourist market, while still paying serious consideration to conservation and the long-term sustainability of birding and other wildlife destinations.

## Conclusion

Avitourism is recognised as being an important, large and growing niche market with high potential to induce economic, social and conservation benefits for birding destinations. It has the potential to create jobs and attract more international visitors to South Africa. Information on avitourist motivation is needed for effective planning, management and development of programmes and products for destinations catering for avitourists. The purpose of this article was to develop a multidimensional measure to gauge the motivations of international avitourists and determine what will inspire birders to travel to South Africa. Understanding avitourist motivation equips the South African avitourism industry for more effective marketing, and providing more enjoyable experiences to international birders.

It may be interesting to further develop and validate this measure in replications of the study in order to investigate differences between birders from different international destinations; between different levels of commitment to the birding activity in order to suggest different destinations that may serve these micro-segments better; between age groups among birders; and between males and females, for example. When this measure is used in future studies, it may also be fruitful to develop at least one or two more items for the emotional and studying dimensions, since this would improve the reliability of these two factors.

It should be borne in mind that this study is only a first step towards construct development and validation. As mentioned by Wolfe and Hsu (2004: 45): “Many iterations need to be conducted before the validity of the scale can truly be assessed because construct validation is a continual process.” This study did not consider aspects of convergent and discriminant validity (Peter 1981), nor did it carry out the validity assessments or establish norms as suggested by Churchill (1979). These aspects may be the focus of another paper, using the same data. Some aspects of validity assessments may require data collection from different target groups, and may require a different research design in order to further refine the quantitative measurement of birder motivation.

Based on the results obtained from questionnaires completed at the British Birdwatching Fair and the Dutch Vogelfestival, this study provides insight into international avitourist motivation. The results suggest that higher-order motivations may explain eight first-order motivational drivers of avitourists:

- The *wellbeing* motivator consists of the four dimensions, namely emotional, spiritual, exercise and mental stimulation motivations. Wellbeing aspects of birding were regarded as very important motivations.

- The *intellectual* motivator was the second most important higher-order motivation, consisting of two dimensions, including observing and studying birds.
- The *social* motivational driver was a moderately important motivation.
- In addition, less important motivational aspects included *photography* as an activity.

It can be recommended that the three most important higher-order constructs, namely *wellbeing*, *intellectual* and *social* activity, are important motivating factors that can be used in product development and marketing to creatively attract avitourists and enhance the birders' experience. These should be taken into account in advertising appeals and marketing efforts to enhance the effectiveness of avitourism marketing. Furthermore, it is recommended that niche markets, such as the avitourism market, be incorporated into national tourism marketing strategies.

The findings in terms of avitourism motivation may assist avitourism managers in developing avitourism products that will fulfil particular birder needs, planning for a more enjoyable experience at the birding destination, marketing and promoting the birding destination or avitourism product, and assisting in developing approaches to help manage avitourists and the impact of their activities.

In conclusion, international avitourism has the ability to contribute significantly towards growing the tourism sector in terms of increasing the length of stay, geographical distribution and volumes of tourists. It could also help to reduce seasonality and unemployment and poverty through employment creation and poverty alleviation. Using knowledge of what motivates birders, it is hoped that more avitourists can be drawn to South Africa, thus increasing the economic, social and conservation benefits of avitourism.

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