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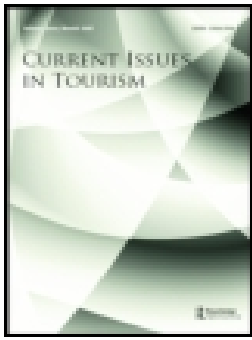
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To cite this article: D. Newsome, K. Rodger, J. Pearce & K.L.J. Chan (2017): Visitor satisfaction with a key wildlife tourism destination within the context of a damaged landscape, Current Issues in Tourism

To link to this article: <http://dx.doi.org/10.1080/13683500.2017.1312685>



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Visitor satisfaction with a key wildlife tourism destination within the context of a damaged landscape

D. Newsome^{a*}, K. Rodger^a, J. Pearce^b and K.L.J. Chan^c

^a*Environment and Conservation Group, School of Veterinary and Life Sciences, Murdoch University, 90 South St, Murdoch, Perth, WA 6150, Australia;* ^b*School of Business and Law, Edith Cowan University, 270 Joondalup Dr, Joondalup, Perth, WA 6027, Australia;* ^c*Tourism Management Program, Faculty of Business, Economics and Accountancy, Universiti Malaysia Sabah, BIMP-EAGA Tourism Development Unit, Jalan UMS, Kota Kinabalu, Sabah 88400, Malaysia*

(Received 29 November 2016; accepted 26 March 2017)

Wildlife tourism is a growing industry globally and visitor satisfaction is vital to ensure its long-term sustainability. The Lower Kinabatangan River is a premier wildlife tourism destination that is affected by surrounding land uses and needs careful management to ensure it continues to provide positive wildlife tourism experiences. As little is known about the motivations and satisfaction of tourists with this experience, a visitor survey was conducted along the Lower Kinabatangan River with 346 surveys completed. The attribute 'Interest in viewing wildlife' had the highest mean level of importance and satisfaction (mean = 4.54 and 4.1, respectively, on a 5-point scale). Respondents were very satisfied with their wildlife tour experience (85%) and would recommend the experience to their friends (87%). However, almost half of respondents (47%) felt more needed to be done to protect the Kinabatangan River and wildlife. Although respondents were satisfied overall with their experience, they also expressed concerns over the number of boats and the protection of the River. Comments focused on the presence of rubbish in the River, intrusion of oil palm and the loss of forest. Many issues are beyond the management realms of tour operators but will impact on the future of the industry.

Keywords: wildlife tourism; Kinabatangan Wildlife Sanctuary; importance-performance analysis; tourism futures

Introduction

Wildlife tourism is a growing industry for both terrestrial and marine environments but when not managed correctly negative impacts can result (e.g. Newsome, Dowling, & Moore, 2005; Rodger, Moore, & Newsome, 2010). Managing the balance between conservation and wildlife tourism can be complex due to conflicting interests and demands (Catlin, Jones, & Jones, 2011). As stated by Rodger et al. (2010, p. 679), 'Wildlife tourism epitomises many of the research and management issues confronting those working at the interface of society and natural resources.' One issue is the complexity faced by wildlife tourism destinations that are vulnerable to impacts from surrounding land uses and therefore require careful management to ensure they can continue to provide positive wildlife tourism experiences.

*Corresponding author. Email: d.newsome@murdoch.edu.au

In many developing countries, wildlife tourism has been viewed as a way of transitioning local economies from unsustainable consumptive use of resources to more sustainable non-consumptive uses. Examples of successful ecotourism programmes with significant conservation outcomes include lemur viewing and bird watching at Andasebe National Park in Madagascar (Newsome & Hassell, 2014) and gorilla and chimpanzee tourism in Uganda (Newsome & Hughes, 2016). Such examples reflect the economic success of employing local people as tour guides and the provision of accommodation and other services by local communities.

For those countries relying upon wildlife tourism for their economy, a better understanding of the interface between wildlife and visitors is needed. To achieve good management of wildlife tourism, both the human and the ecological dimensions need to be understood and balanced (Duffus & Dearden, 1990). To achieve this balance, an understanding of how vital wildlife is to visitors and the social and economic benefits derived from the industry is required. To ignore the needs, desires and views of visitors could result in degradation to the wildlife tourism experience or the wildlife itself (Reynolds & Braithwaite, 2001).

The tropical rain forests of Sabah comprise a world-class wildlife-based tourism destination and the Kinabatangan River experience is one of the foremost wildlife tourism spectacles in Asia (Chan, 2005). Over the last 10 years, the opportunities provided for wildlife tourism development due to private land sales have led to an increase in tourism providers located along the banks of the Kinabatangan River. The Kinabatangan Wildlife Sanctuary, situated along the Lower Kinabatangan River, is of particular importance as it provides economic opportunities that can be derived from the conservation of the Sanctuary and its biodiversity. At the same time, on-going land clearing and development of oil palm plantations (*Elaeis guineensis*) on private land pose a significant threat to ecological values and are antagonistic to sustainability of the of the Kinabatangan Wildlife Sanctuary and the associated ecosystem as a tourism resource (Ancrenaz et al., 2014; Hai, Ng, Prudente, Pang, & Choon Yek, 2001; Kler, 2007).

Recognition of the wildlife tourism potential of the Lower Kinabatangan River has resulted in a proliferation of tourist lodges over the last 15 years (KiTA, personal communication, 2016). Today many boats operate along the River taking tourists on early morning and afternoon excursions to view wildlife. For example, during the peak tourist season, there are as many as 20 boats travelling some of watercourses at the same time. Such an intensity of boat traffic searching for wildlife has the capacity to spoil the visitor experience because of crowding at a wildlife sighting, boats vying for the best position for client viewing, possible noise impacts, the presence of exhaust fumes and a reduction in the benefits of tranquillity while increasing the risk of disturbance to wildlife. It is possible that over the longer term negative client feedback may have a detrimental effect on the image of the tourism industry located along the river, negating good word-of-mouth reports and repeat visitation. Currently, there are no data on whether the increased tourism activity and tourist perception of environmental management is impacting upon the quality of visitor experience. This study aims to rectify this by examining the visitor experiences and perceptions surrounding the Lower Kinabatangan River wildlife tourism experience.

Moreover, for the Lower Kinabatangan River system to remain a world-class wildlife tourism destination, it is important to maintain the quality of visitor experiences, as degradation of these experiences can eliminate some tourist segments and transfer the area into a less sustainable mass tourism product (Duffus & Dearden, 1990). As such, this paper focuses on the human dimensions of wildlife tourism within the Kinabatangan Wildlife Sanctuary. In particular, the motivations and satisfaction of the wildlife tourists are explored

in order to establish if the industry is meeting visitor expectations. Given the importance of wildlife tourism to the Sabah economy (Chan, 2006; Chan & Baum, 2007a; Chan & Yeoh, 2001) and its potential to contribute to the future conservation of the Sanctuary, the results of this research will be important in informing wildlife tourism policy at both the local and national level in Malaysia.

The research site

The Kinabatangan Wildlife Sanctuary is approximately 29,000 hectares in size and comprises a diverse range of wildlife habitats including mangroves, freshwater swamps, riverine and limestone hill forest formations, seasonally flooded floodplains, oxbow lakes and dryland *Dipterocarp* forest (Bruford et al., 2010; Daud, 2002; Tuuga, 2010). The Sanctuary itself lies within a large alluvial floodplain and contains some 50 mammal species and is one of the few sites in the world where 10 species of primate occur together (Boonratana & Sharma, 1997; Hai et al., 2001). Among the fauna species are a number of iconic and endangered species, including the rare and endangered orang-utan (*Pongo pygmaeus*), the endemic proboscis monkey (*Nasalis larvatus*) and the pygmy elephant (*Elephas maximus*). In addition, over 200 bird species can be found including eight of Malaysia's threatened bird species such as the Storm's stork (*Ciconia stormi*) and a number of hornbills (family Bucerotidae) (Ancrenaz et al., 2014; Boonratana & Sharma, 1997).

Protected areas and the remaining secondary forest occur within a fragmented landscape (Figure 1) dominated by oil palm plantations and logged forested areas of various size and quality (Ancrenaz, 2003). Currently, only 4% of the Kinabatangan River catchment is forested and 60–70% of this is protected, which includes the Kinabatangan Wildlife Sanctuary (Ancrenaz et al., 2014). Protected areas that are closer to the headwaters of the river are smaller in size and more isolated from each other than those located closer to the river delta (Bruford et al., 2010; Latip, Siegfried, & Umar, 2013).

In terms of natural forest that remains (approximately 50% in the State of Sabah), it is of variable condition and remains under threat of clearance particularly if located on privately owned land (Lim, 2013; Reynolds, Payne, Sinun, Mosigil, & Walsh, 2011). While logging has declined due to diminishing supplies of hardwood timber (Reynolds et al., 2011), clearing and replacement of forest by oil palm plantations have been a particular focus of land use and the motivation for forest conversion over the last 30 years (Fitzherbert et al., 2008; Latip et al., 2013; McMorrow & Talip, 2001). Increased human activity, river use and private land development have led to fragmentation of the Kinabatangan Wildlife Sanctuary and associated natural areas with fauna potentially isolated in different forest blocks with the prospect of having to cross plantations and agricultural land to gain access to different areas of forest (Estes et al., 2012; Fletcher, 2009). The development of oil palm and associated land clearing pose a significant threat to biodiversity and the ecological values of Kinabatangan Wildlife Sanctuary and remaining forested areas (Ancrenaz et al., 2014; Fitzherbert et al., 2008; Hai et al., 2001; Kler, 2007).

Alongside the history of logging and the on-going development of agricultural land use, tourism has become a significant socioeconomic value in the region. The Sabah Tourism Masterplan (Ministry for Tourism and Environmental Development, 1996) outlined the development and promotion of nature-based tourism activities as Sabah's core natural attraction and the Sandakan/Kinabatangan Region was identified as one of the main nature tourism zones in the State. Accordingly, the Lower Kinabatangan is one of the most popular tourist destinations that are promoted in Sabah for wildlife viewing. Long-haul tourist markets (such as the UK or other parts of Europe, America and Canada) are

attracted to Sabah because of natural values and wildlife (Chan & Yeoh, 2001). Tourist arrivals were estimated to be at around 17,000 in 2015 but this is likely to be an underestimate (KiTA, personal communication, November 10, 2016).

The majority of wildlife tourism activities are undertaken through the ecolodges that are located along the banks of the Lower Kinabatangan River. Ecolodge operators, located around the villages of Abai, Sukau, Bilit and Batu Putih (Figure 1), provide both accommodation and eco-tour activities for their guests including wildlife viewing, forest trekking, night safaris and village tours. The lodges offer their own experienced and knowledgeable guides and interpretive walks to visitors, who are often travelling in small groups. Riverboat cruise trips are a primary eco-activity provided to guests staying in the lodges. The lodges range from those with basic facilities through to international standard, high-end (luxury) facilities.

Progress towards the implementation of sustainable wildlife tourism along the Lower Kinabatangan is promoted by an advocacy group comprising local tour operators and WWF Malaysia and endorsed and supported by the State of Sabah Ministry of Tourism, Culture and Environment (KiTA, 2005). KiTA (Kinabatangan-Corridor of Life Tourism Operators Association) aims to promote sustainable land practices along with appropriate environmental management. Recent initiatives include recycling and composting programmes, the launch of a wildlife patrol unit and the expression of concerns regarding unlicensed and illegal tour operators and their guides. KiTA's vision is *to promote and*

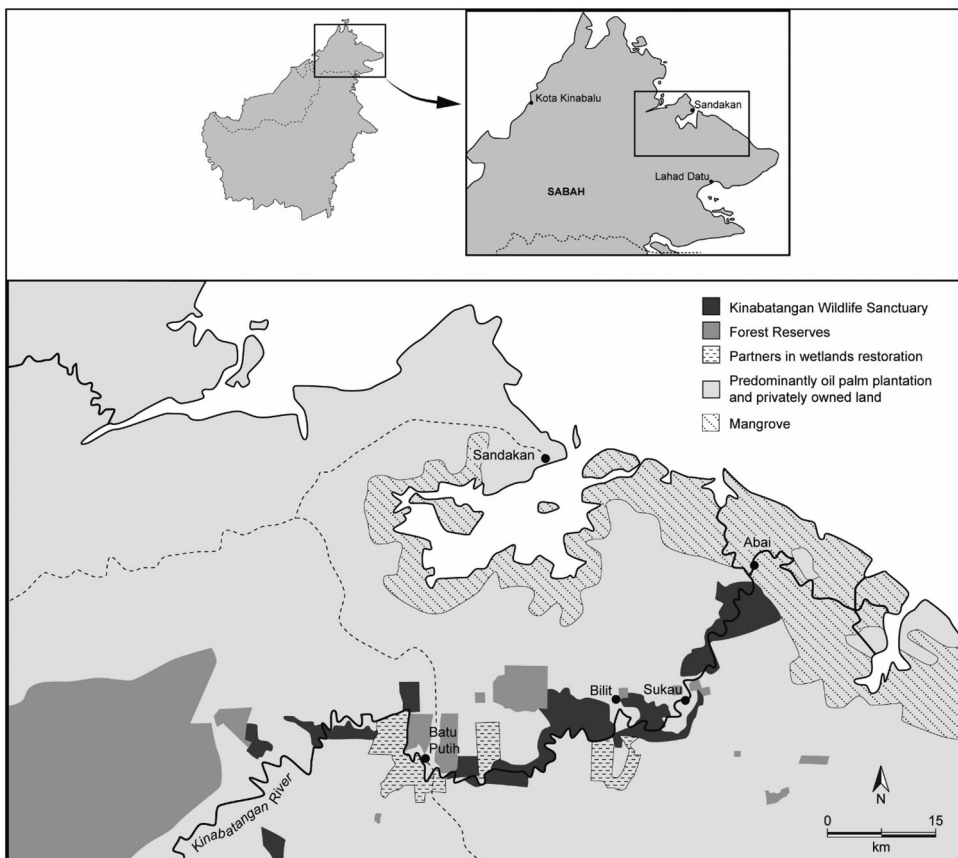


Figure 1. Location map of Kinabatangan River showing protected areas.

implement a globally recognized sustainable tourism industry via the mission of good environmental practices, providing opportunities for local people and a co-existence between various land uses.

Methods

A visitor survey was distributed on-site at eight lodges along the Kinabatangan River. It explored four key components: the motivations of the experience; visitor satisfaction with their experience; visitor assessment of current management of wildlife tourism along the Kinabatangan River; and demographic details about the visitors. The questions were developed from a literature review and employed a number of questions that had been tested in previous wildlife studies (Valentine, Birtles, Curnock, Arnold, & Dunstan, 2004; Ziegler, Dearden, & Rollins, 2012). Closed-ended questions were used to explore visitor motivations, the importance of, and satisfaction with their experience and were measured on a 5-point Likert scale from 1 (not at all important) to 5 (extremely important). A small number of open-ended questions allowed respondents the opportunity to expand on particular aspects of their experience.

For the 18 attributes relating to their wildlife experience, visitors were asked to give a level of importance and performance (which for this survey was worded as 'satisfaction' as per the questionnaire derived from Taplin, Rodger, & Moore, 2016) for later analysis via importance-performance analysis (IPA). This involves using the means of importance and satisfaction for each attribute as the coordinates for placement within a two-dimensional matrix that has performance (satisfaction) on the horizontal and importance on the vertical axis (Figure 2) (Tonge & Moore, 2007; Tonge, Moore, & Taplin, 2011). The crosshairs for the matrix were located at the scale mean of 3 to allow for simpler comparison (Oh, 2001). The four quadrants produced by the placement of the crosshairs are interpreted as follows: an attribute lying in the top right-hand quadrant has a high level of importance

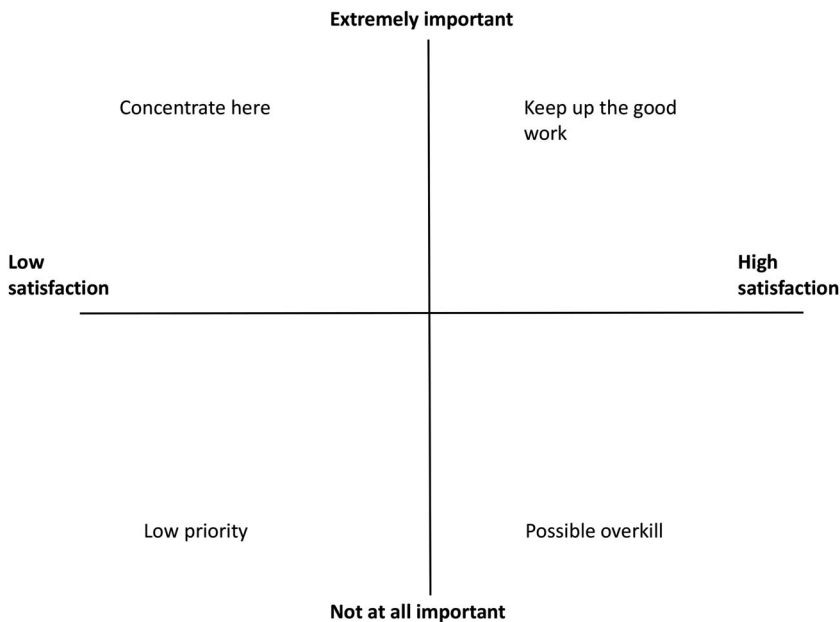


Figure 2. Importance-performance matrix (based on Oh, 2001, p. 618).

and a high level of performance, thereby suggesting the need to ‘keep up the good work’. An attribute in the top left-hand quadrant has a high level of importance but a low level of performance; this would suggest a need to ‘concentrate here’. For the bottom two quadrants, the bottom left indicates a ‘low priority’ need given the attribute has low importance and low performance, whereas the bottom right indicates a ‘possible overkill’ in the allocation of resources given the low importance and high performance of the attribute (Oh, 2001; Tonge & Moore, 2007; Tonge et al., 2011).

All lodge owners along the Lower Kinabatangan River were asked to participate with the research with eight lodge owners agreeing to distribute the survey. It was distributed to all tourists over the age of 18 staying at the lodges in August and September 2015. Researchers (when present) and lodge employees distributed the survey to visitors staying at their lodge after they had undertaken a wildlife tour along the river. Researchers were not able to be present for the whole surveying period; therefore further distribution of the survey was left to lodge employees. A total of 346 surveys were collected over the 4-week period. Total visitor numbers along the Kinabatangan River are currently are at around 17,000; however, a sample size of 346 gives less than 10.0% margin of error based upon a population size of approximately 20,000. Descriptive statistics were undertaken on the data collected from the visitor survey (based on the assumptions of adequate sample size and normal distribution of data).

Results

The following are descriptive results based on the 346 responses to the survey and presented in four sub-sections – Visitor information, Visit information, Visitor experience and Perceptions of management.

Visitor information

The most common age group was 25- to 34-year-olds (36%) with the other age groups remaining fairly consistent except for those 65 and older (4%) (Table 1). There were more females (55%) than male (45%) respondents (Table 1). The number of adults and children in respondents groups was also asked in the survey. Over half of the respondents indicated that there were two adults in their group (Table 1). Large groups were less common with only 11% of respondents indicating their group size was larger than five adults. Groups containing no children were most common (77%), followed by two children (9.5%) and one child (9%). Visitors were from a number of different countries, including United Kingdom (16%), Australia (12%) and Italy (8%).

Visit information

When asked to indicate their number of visits, nearly all respondents (95%) indicated this was their first visit (Table 1). When asked if they came specifically for a wildlife tourism experience 96% indicated ‘yes’ (Table 1). Respondents were also asked if they had undertaken a wildlife tour on previous holidays with 70% of respondents indicating they had (Table 1). For 83% of respondents, their visit to the Kinabatangan was one of the several destinations on their trip whilst 8% had not planned to visit.

Respondents were most likely to be staying along the Kinabatangan River overnight (Table 1) with the majority staying two nights (73.5%), which is the most common package offered by tour operators in the region. To gain a better understanding of what

Table 1. Characteristics of respondents ($N = 346$).

Visitor characteristic	Percentage	Visit characteristic	Percentage
<i>Age group</i>		<i>Trip planning</i>	
18–24	14	Main destination of trip	9
25–34	36	One of several on trip	83
35–44	18	Not a planned destination	8
45–54	18	<i>First visit to Kinabatangan River</i>	
55–64	10	Yes	95
65 or older	4	No	5
<i>Gender</i>		<i>Trip specifically to undertake wildlife tourism</i>	
Male	45	Yes	96
Female	55	No	4
<i>Highest education level attained</i>		<i>Previously undertaken wildlife tour</i>	
Primary	3	Yes	70
High school	15	No	30
University/college	52	<i>Length of stay</i>	
Postgraduate	30	1 night	17
<i>Number of adults/children</i>		2 nights	73.5
0	0/77	3 nights	7
1	8/9	4 nights	1.5
2	57/9.5	5 nights	1
3	6/2		
4	10/2.5		
5	2/0		
6–10	11/0		
11 or more	6/0		

they were doing whilst visiting the Kinabatangan River respondents were asked what activities they had participated in during their stay. The main activity undertaken by respondents was not surprisingly ‘wildlife viewing’ (92%) followed by ‘guided tours’ (78%, Figure 3). The least participated in activity was ‘tree planting’ (8%) and the ‘evening slideshow’ (11%). Other activities (5%) that respondents mentioned included Orang-utan talks and river cruises.

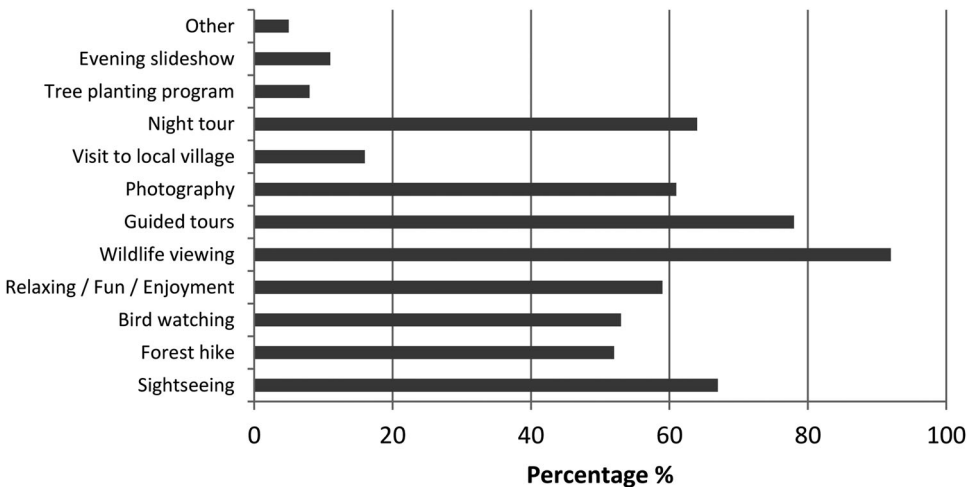


Figure 3. Activities undertaken by respondents whilst staying along Kinabatangan River.

Visitor experience

Respondents were asked their motivations for visiting the Kinabatangan River and the most common was ‘to explore new environments’ followed by ‘an interest in primates’ and ‘to expand my knowledge’ (Figure 4). For ‘other’, responses included: to spend time with family; see it before it disappears and large variety of wildlife.

Respondents were then asked to indicate the level of importance and their level of satisfaction with 18 different attributes relating to Kinabatangan River. The attribute ‘Interest in viewing wildlife’ had the highest mean level of importance and satisfaction (mean = 4.54 and 4.1, Figure 5). The attribute with the lowest importance was ‘Proximity to birds’ (mean = 3.41, Figure 5) while for satisfaction this was ‘To see elephants’ (mean = 2.13, Figure 5).

The means for importance and satisfaction for all the attributes were plotted within a two-dimensional grid with performance (satisfaction) on the x axis and importance on the y axis (Figure 5). Results show that all attributes except one lie within the *keep up the good work* quadrant. The remaining attribute ‘To see elephants’ lies within the *concentrate here* quadrant as the mean for satisfaction for this attribute was below the mean for importance. The tabulated results in Figure 5 show the satisfaction mean as being marginally lower than the importance mean for a number of other attributes, including ‘Ability to have a unique wildlife experience’ and ‘Proximity to wildlife’; however, these were not found to need further attention at this stage.

Respondents were also asked questions relating to their overall satisfaction and future loyalty behaviours. Almost all respondents (97%) indicated that they would undertake another wildlife tour in the future (Table 2). Additionally, 85% (mean of 4.24 on a 5-point scale) of respondents were satisfied/very satisfied with their visit to the Kinabatangan River (Table 2). Overall, 80% of respondents said they would come back and visit the Kinabatangan River again if possible (Table 2). Whilst 86% (mean of 4.30 on a 5-point scale) of respondents indicated that they would recommend this experience to friends.

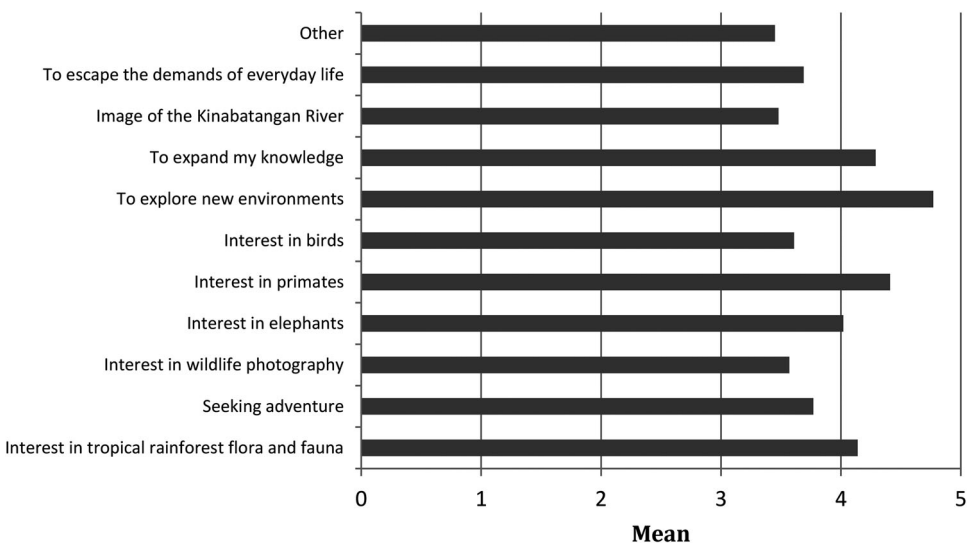
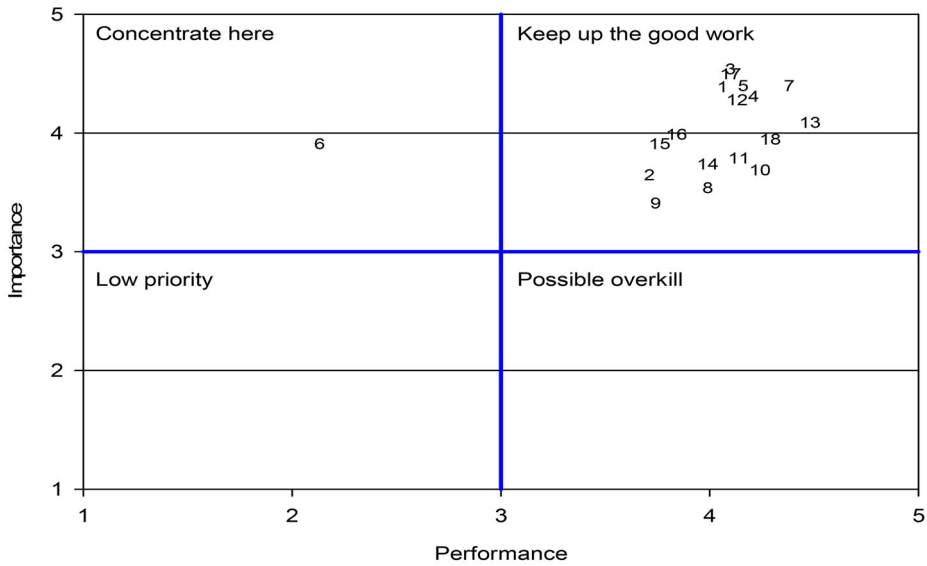


Figure 4. Motivations of respondents for visiting Kinabatangan River ($N = 346$).



Attribute	Code	Importance (mean)	Satisfaction (mean)
Ability to have a unique wildlife experience	1	4.39	4.06
Seeking adventure	2	3.65	3.71
Interest in viewing wildlife	3	4.54	4.1
To explore new environments	4	4.31	4.21
Proximity to wildlife	5	4.4	4.16
To see elephants	6	3.91	2.13
Viewing primates	7	4.40	4.38
Viewing birds	8	3.54	3.99
Proximity to birds	9	3.41	3.74
Regularity of boat trips	10	3.69	4.24
Number of visitors on boat tour	11	3.79	4.14
Interesting and informative guided boat tour	12	4.28	4.13
Feeling safe on the guided boat tour	13	4.09	4.48
Clear information about visitor safety	14	3.74	3.99
Condition of the river	15	3.91	3.76
Useful information on flora & fauna during boat tour	16	3.99	3.84
Number of other visitors at your lodge	17	4.5	4.1
Other visitors generally well behaved	18	3.95	4.29

Figure 5. Importance-performance analysis of the 18 attributes used in the survey. Table shows the attribute relating to each code and the means for importance and satisfaction (performance).

Table 2. Measures of overall satisfaction and loyalty behaviours ($N = 346$).

Overall satisfaction and loyalty behaviours	Mean/ percentage
Would you undertake another wildlife tour elsewhere in the future?	Yes = 97% No = 3%
Overall, how satisfied are you with your visit to Kinabatangan River?	4.24 ^a
If you could, would you come back and visit the Kinabatangan River again	Yes = 80% No = 20%
How strongly would you recommend this experience to friends who share your interests?	4.30 ^b

^aMeasured via a 5-point scale with 1 = 'very dissatisfied' and 5 = 'very satisfied'. ^bMeasured via a 5-point scale with 1 = 'not at all' and 5 = 'very strongly'.

Perceptions of management

This section looks at how visitors perceived the current management of the Kinabatangan River, including the number of wildlife boats and the overall management of the river and the wildlife experience. Respondents were asked about one aspect that they would like to change about their wildlife tour via an open-ended question ($n = 187$), with 12% of respondents commenting no change was needed. Other comments related to the boat tours with respondents wanting longer tours (6%) and commenting that there were too many tour boats on the river resulting in crowding (6%). Respondents also indicated that they would have liked to have seen different or particular wildlife (in this case mainly elephants) (6%) and were concerned about the amount of rubbish in the River (5%).

When asked about aspects of the tour that they really liked, responses to this open-ended question were categorized through headings, including boat tours, wildlife, facilities/lodge and the surrounding environment ($n = 234$). The highest response was for the boat tours with respondents commenting that they liked their tour guide (28%). Further respondents liked seeing monkeys and orang-utans (19%) and liked the proximity to wildlife (7%).

Respondents were asked a series of questions relating to the number of wildlife viewing boats on the River. They were asked about the number of boats they saw whilst on their wildlife tour and what their preferred amount of boats would be. Just under 80% of respondents would like to see between 0 and 4 boats whilst out on their tour yet only 37% of respondents actually experienced this (Figure 6). Instead 58% of respondents experienced between 5 and 10 boats whilst on their wildlife tour with 31% commenting that this was too many.

Respondents were then asked three questions relating to the protection and management of wildlife and the Kinabatangan River. When asked whether they think enough is being done to protect the Kinabatangan River and its wildlife, 47% of respondents felt that more was needed. When asked if they felt wildlife tourism was well-managed, 59% of respondents said yes and only 4% said no, while 37% were unsure. Respondents were also asked if they felt wildlife tourism on the Kinabatangan River is a good example of environmentally responsible travel, 63% said yes and 5% no with 32% unsure.

Discussion

The visitor survey is very revealing from two points. Firstly, the IPA shows that visitors are currently very satisfied with their wildlife tourism experience (except for viewing elephants). However, when probed further, tourists indicated awareness of current landscape

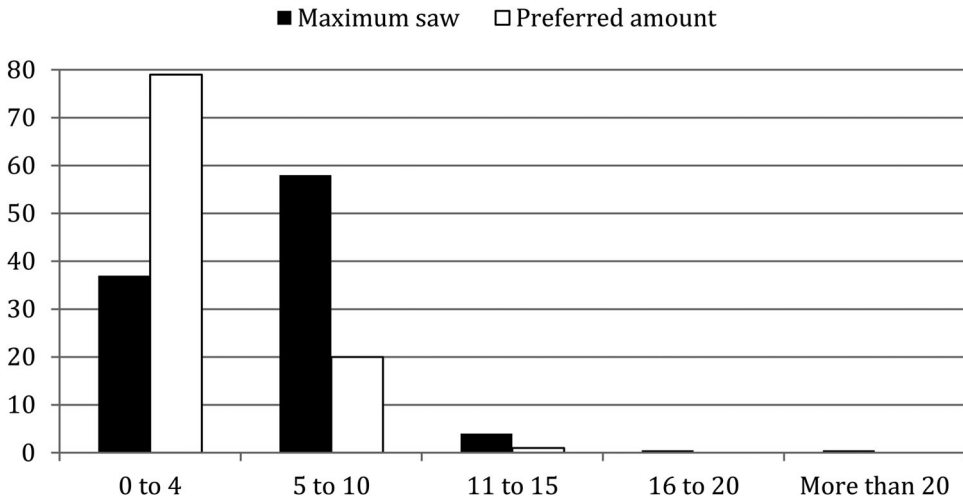


Figure 6. Maximum number of boats seen on wildlife tour and the preferred amount of boats they would like to see as indicated by respondents.

change, problems associated with invasive species and solid waste pollution as well as increased congestion at wildlife sightings. Accordingly, the following discussion highlights that these issues, as identified by tourists, the literature and tourism researchers alike, require attention. In particular, an examination of current land-use practices, current efforts to conserve wildlife and a critical review of current tourism activities. The implications for tourism planning and policy are subsequently discussed.

Tourism futures for the Kinabatangan Wildlife Sanctuary

Ecological context

The Kinabatangan River is an important ecological system containing rich biodiversity and ecosystem services which contribute food and water supply and a wide range of habitats for wildlife (Hai et al., 2001; Karacsonyi, 2001). There are 11 major villages situated along the Kinabatangan River with local communities relying heavily on the River for clean water, food and income (Fletcher, 2009; Karacsonyi, 2001). Additionally, the river and wetlands are important spawning and nursery grounds for many fish and crustacean species crucial to the integrity of the regional food chain (Ramsar, 2006). The endangered Pygmy Elephant relies on an extensive area of dry land within the riverine system and the Proboscis Monkey breeds in riverine and peat swamp forests (Estes et al., 2012; Hai et al., 2001; Karacsonyi, 2001; Ramsar, 2006; Tuuga, 2010). Additionally, the Kinabatangan Wildlife Sanctuary provides some of the last remaining good-quality habitat for the endangered orang-utan. The Lower Kinabatangan is thus a very important conservation reserve for a range of rare and charismatic species.

This study revealed that 96% of respondents visited the area with the aim of undertaking a wildlife tour. This finding is consistent with the study undertaken by Chan (2006), who reported that the Lower Kinabatangan River region, including Sukau, was designated as one of 10 'special places' for Malaysian ecotourism as outlined in National Ecotourism Plan 1996 (World Wide Fund For Nature Malaysia (WWFNM), 1996). The most important objectives when wildlife viewing is the opportunity to see birds, primates and the pygmy

elephant. Conservation of habitat, species protection and combating the problems brought about by habitat fragmentation is thus vital to the sustainability of this wildlife tourism industry. For example, there is an Elephant Action Plan in place, the objective of which is to address current and on-going issues relating to poor genetic diversity, human–elephant conflict, poaching, loss of habitat, habitat fragmentation and the integrity of migration routes (Sabah Wildlife Department, 2010). The IPA revealed that most visitors had a desire to see wild elephants but were not satisfied with this aspect (Figure 4). The significance of the data is that the pygmy elephant is very important to visitors and a vital component of tourism ‘pull’ as well as the actual wildlife tourism experience if sighted. Given the situation that elephants move around on a seasonal basis, but if present along the riverbank they can often be readily viewed, this situation offers significant marketing opportunities for lodge owners/tour operators. However, given that sightings of elephants can be unpredictable and sporadic, and that they are not always visible from the riverbank, it might be useful for tourism providers to de-emphasize elephant sightings and concentrate marketing on more readily viewable species.

Resource integrity and sustainable tourism

The Kinabatangan Wildlife Sanctuary and associated river system is considered to be one of the best tourist destinations in Borneo (Buckley, 2010; Fletcher, 2009; Hai et al., 2001) and, as mentioned previously, of great socioeconomic importance for both local people and visiting tourists (Ancrenaz, Dabek, & O’Neil, 2007). This important wildlife tourism resource is impacted in the same way as many other natural areas that are also important tourism resources. From a protected area management point of view, there is on-going loss of forest and continued fragmentation of wildlife habitat, which is of particular significance for orang-utans and elephants (Bruford et al., 2010; Estes et al., 2012). Rapid tourism development, a rapid increase in tourism numbers, degraded environmental conditions associated with tourism, the exploitation of natural resources and the effects of poaching, logging and pollution are now widespread problems across the entire Asian region (Corlett, 2014; Newsome, Moore, & Dowling, 2013).

The development of tourist facilities over time has led to an increase in the number of lodges offering accommodation and a growing number of wildlife viewing boat trips. Private land development as well as increased agricultural practices and increased human use of the river have also led to fragmentation of the Sanctuary and a decrease in fauna connectivity (Fletcher, 2009). From a ‘big picture’ landscape perspective, the development of oil palm and cocoa plantations along with logging and land clearing poses a significant threat to the ecological integrity of the Kinabatangan Wildlife Sanctuary (Hai et al., 2001; Kler, 2007; Koh & Wilcove, 2009; Wyn, 2013).

From a tourism operational perspective, there is anecdotal evidence of disturbance to wildlife in the form of tour boats gaining close access to primates and elephants, boats being landed and wildlife being pursued, elephants being disrupted as they move from one patch of dry land to another and bird watching groups using playback and/or feeding wild birds in order to maximize photographic opportunities for tourists. Although such tourism-related impacts are not as ecologically significant, when compared to land clearing and loss of habitat, it is useful to strive for minimal impact scenarios in places where wildlife is surviving and is the focus of tourism attention.

The visitor survey revealed that although visitors were satisfied with their wildlife tourism experience there was a view that most would only like to experience 0–4 boats at any one wildlife sighting yet almost 60% experienced 6–10 boats (Figure 5).

Furthermore, visitor perceptions of good management, environmentally responsible tourism and the protection of nature indicated that more work needs to be done in these areas.

Current status of the wildlife tourism experience

Despite all of the above-mentioned issues and potential problems, the IPA reported in this paper shows that visitors are currently very satisfied with their wildlife tourism experience on the Lower Kinabatangan River. When asked what they would change, some of the issues relating to heavy boat traffic (noise, fumes, congestion) at wildlife sightings began to emerge. These same issues have been previously identified by Chan and Baum (2007b). Visitors flagged the crowding issue, boat noise and even recommended that operators stagger the boat activity on the river; however, this could potentially increase the instances of disturbance as the length of time the boats are on the river would then increase. In addition, some of the wider environmental problems facing many sites in Asia were also identified such as floating waste and the extent of deforestation and replacement of forest with oil palm.

This latter aspect is also connected with the presence of large-scale oil palm plantations and small holder private ownership of natural forest. Private land owners may sell their land for agricultural development or come under pressure from larger land owners to gain crop-related economic returns from their land. As a result, good-quality wildlife habitat along the banks of the river may be lost. Wyn (2013) reports on 'illegal' incursions into protected areas and poor government enforcement of laws restricting land clearing in the riparian zone. Under these conditions, wildlife tourism is at risk, given that land owners are encroaching on important habitat and that the area of natural protected space is being reduced.

Despite the very high levels of tourist satisfaction, this study identified concerns about river pollution, deforestation, the dominance of oil palm in the landscape, invasive species (water hyacinth *Eichhornia crassipes*), increased tourism numbers and congestion at sightings. These tourist observations connect in with perceptions of management, where only 59% of respondents feel that wildlife tourism is well managed, 63% being of the view that the experience is a good example of environmentally responsible travel and 47% indicating that the level of protection is insufficient and needs more attention.

Implications for planning and policy

The tourism policy and planning implications of the results of this visitor survey can be considered at four different levels:

Landscape-level issues

At the landscape scale, there is degradation of the river ecosystem by pollutants derived from agricultural runoff. Invasion by the freshwater weed *water hyacinth* clogs up low-flow, open-water habitats such as oxbow lakes, and the natural values of the river are further affected by the presence of floating debris such as plastic items. The continuation of clearing of private land coupled with the expansion of oil palm means a loss of habitat for prime tourism attractors (primates, elephants and hornbills) and degradation of the river viewscape. Tourists are indicating concern about these problems; however, addressing these issues requires a regional-scale vision that is on par with the overall

tourism strategy for Sabah, which promotes quality nature-based tourism experiences (Chan & Baum, 2007b). This will require extensive stakeholder consultation, including representatives from government, the tourism industry, plantation owners, local community, tour operators, academics, conservation-related NGOs, the Forest Department and Sabah Wildlife coming together with a shared vision for the Kinabatangan.

Management and protection of the wildlife

For some species, such as the orang-utan and pygmy elephant, action plans are already in place (e.g. Sabah Wildlife Department, 2010, 2011). Such plans need to be reviewed for their efficacy and updated as necessary. More attention needs to be given to the protection of birds as some species have declined significantly over the last decade (e.g. Collar, 2015; Harris et al., 2015; Shepherd & Foley, 2013). Restoration of degraded land and the development of wildlife corridors need to be expanded as a land-use/conservation strategy (e.g. see Ancrenaz, 2011; Ancrenaz & Ambu, 2009; Bruford et al., 2010). Illegal wildlife collecting and poaching require community education programmes and especially enforcement for effective conservation (see Baruch-Mordo, Breck, Wilson, & Broderick, 2011 for perspective).

KiTA attempts to be more directly involved in the protection of wildlife by liaising with all key players (e.g. Sabah Wildlife Department, NGOs and the Ministry of Tourism, Culture and Environment), in the development of wildlife watching standards, via monitoring initiatives such as the Wildlife Patrol Unit and tree planting programmes (KiTA, personal communication, November 10, 2016). Despite this encouraging work by KiTA, 47% of people experiencing a tour felt that more work was needed in regard to the protection and management of wildlife and that 37% felt unsure that the wildlife tourism was being well managed.

Broad scale tourism development

The approaches considered above should help evaluate how tourism is developing and changing along the Kinabatangan River system. For example: What do stakeholders want – mass tourism (a form of tourism that comes with problems of managing larger numbers of people) or experiential niche wildlife tourism (quality of ecotourism goes hand in hand with sustainability)? There needs to be a consideration of how the nature of tourism changes. For example, under an uncontrolled tourism scenario, certain types of tourists can be displaced while at the same time other types (mass tourists) of tourists are gained. The latter may be more difficult to manage from an environmental sustainability point of view as additional staff and resources are likely to be needed to control any negative impacts. A regional tourism management plan for the Lower Kinabatangan River needs to identify the optimal tourism scenario. The experience as it currently stands does not lend itself to a mass tourism scenario and most probably never will. The environmental consequences of uncontrolled tourism need to be weighed up against the quality of the tourism experience being delivered and the need to protect natural resources. Results indicate that 80% of tourists would prefer to see only 0–4 boats while undertaking a tour but nearly 60% actually experienced 5–10 boats at a sighting with many visitors (31%), indicating that this was too many (see below). A management plan should set limits of acceptable change from both environmental and social standpoints (see Newsome et al., 2013 for details). The visitor perspectives reported in this paper help inform such an approach.

Localized tourism activity-specific issues

Respondents have identified congestion as a problem at wildlife sightings and anecdotal evidence points to wildlife disturbance and variability in the quality of guided tours. These problems can be encapsulated as follows:

- Crowding at sightings (noise, petrol fumes, congestion, some boats more so than others)
- Quality of tour guiding (untrained guides)
- Disturbance of wildlife (some providers more so than others)

These problems result from the continuing expansion of tourism along the Lower Kinabatangan River. While in its early stages, ecolodge operations were self-managed and self-quality controlled according to the principles of ecotourism; however, as more providers have entered the scene, the quality of operations has become more variable. Lodges such as those at Sukau operate under a code of conduct, employ electric motors at sightings to avoid noise and fumes and have trained guides; however, this is not always the case with other operators. A particular issue is likely to be with ‘freelancers’ who enter the scene without any consideration of the current working environment. A solution to this problem lies in a coordinated approach to tourism operations as highlighted by KiTA, who have already identified unlicensed tour operators and poorly trained guides as a threat to the quality of tourism experiences around wildlife tourism zones. KiTA emphasizes the importance of good tourism governance where members of the group agree to abide by the principles of ecotourism. It can be argued that the implementation of a strict government licencing policy that requires all operators to be a member of KiTA, abiding by its code of conduct and approach to tourism, would be a significant step forward in setting consistent standards of tourism operation. Non-compliance would require necessary action and policing for such a policy to be effective. Congestion might also be avoided by the implementation of a zoning/allocation of use policy that is focused on the geographical origin of tour operators.

Implementation

In addressing the threats to the Kinabatangan and managing the before-mentioned impacts, it is important that there is a common consensus and there is involvement of all key stakeholders such as the local community, officials from government departments concerned with tourism, forestry and wildlife, and all of the tour guides/tour operators providing wildlife tourism services. Respective government agencies thus need to implement and enforce relevant habitat and wildlife conservation strategies. Future tourism planning needs to consider controls over tourism development and a common goal for all tourism stakeholders. Equally important, the tour and lodge operators need to develop sustainable operational strategies to reduce noise and pollution from the riverboat engines and manage tourism-related impacts on wildlife and their habitats. Implementation could be achieved under a single governing body that contains representatives from all parties and overseen by a government-supported Kinabatangan Tourism Futures Management Committee.

Conclusions

Visitor perceptions of wildlife tourism experiences are important for ensuring their long-term sustainability and this is especially the case for ecolodges along the Lower

Kinabatangan River. While previous studies have focused on international ecotourist motivations and satisfaction with ecolodges at Sukau (Chan, 2005; Chan & Baum, 2007a), there have been no specific studies focusing specifically on the wildlife tourism experience in the lower Kinabatangan ecosystem. Results from the IPA revealed that tourists were highly satisfied with their tourism experience; however, open-ended questions revealed concerns regarding the number of boats at sightings, aspects of environmentally responsible tourism and the protection of wildlife. In particular, visitors noticed floating of rubbish, intrusion of the oil palm industry and they were uncertain about whether the Lower Kinabatangan River and associated ecosystem were being adequately protected. These issues identified by tourists had already been identified by researchers and some tour operators (Chan, 2005; KiTA, personal communication, 2016).

This study thus contributes to our understanding of tourists' evaluation of wildlife tourism and identifies those attributes that are important to quality experiences along the Lower Kinabatangan River. The negative issues raised suggest that ecolodge operators could further improve their operations in order to enhance the wildlife viewing experience and improve the sustainability of wildlife tourism in the region. The survey also has managerial and practical implications for wildlife tourism management in regard to quality of experience and tourist satisfaction. Accordingly, it can also be used to inform policy and planning, such as the need for a regional- or landscape-scale vision for the Kinabatangan that emphasizes greater management and protection of key wildlife species, as well as the need to set a clear direction for tourism development and management for the region in the future. This is in addition to the need to address localized tourism-related issues such as crowding, and quality control of tour guides. Finally, the visitor survey thus serves as yet another early warning signal that negative change can take place and the sustainability of Lower Kinabatangan River experience, as one of the foremost wildlife tourism spectacles in Asia, is at risk of continual degradation. This latter point serves as a useful comparative study for destinations elsewhere in Asia and within the global context. For example, conservation areas in the Philippines (Tabunan Forest), Thailand (Doi Inthanon National Park) and Vietnam (Cuc Phuong National Park) are also under threat from land-use changes, landscape-level impacts, tourism development and high levels of visitation.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by the Murdoch University (small grants scheme) and Universiti Malaysia Sabah – BIMP-EAGA Tourism Development Unit (University Research Grant).

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