Visitor Appraisal on Impact of Urban Wildlife Centre and Green Space: Study of Kitale Nature Conservancy, Kenya

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Abstract

This article examined the contribution of an urban wildlife education centre, in promoting visitor connection to nature and awareness of conservation concerns. The study adopted a post-visitor appraisal quantitative survey approach on knowledge, attitudes and practices of visitors in relation to green spaces; individual action towards wildlife and environmental conservation; and level of use of signages and interpretations facilities. Our study revealed that upon visiting the facility, majority of the respondents had a better understanding of wildlife and the ecosystems; had learnt something new about wildlife and environmental conservation; and importance of sustainable tourism. Additionally, most of the respondents affirmed that their individual actions can significantly promote conservation measures, with a minor a population understanding how they can contribute to nature conservation This study stresses the contribution of wildlife education centres and green spaces in availing hands-on experiential lifelong knowledge essential for positive behaviour change and empathic human-wildlife-environment interventions.

Keywords: Educational Tourism; Connection to Nature; Green Space; Sustainable Tourism; Visitor Appraisal

Introduction

Background Information

Wildlife and environmental education centres seek to teach the public about wildlife biodiversity, ecological processes, conservation initiatives and management strategies (Sponarski et al., 2016). As postulated by Gore et al. (2006), Waswala et al. (2019) and Waswala & Mburu (2022), by blending wildlife and environmental education programmes with experiential education, participants can increase retention and value of the training programs. Environmental education (EE) programmes enhance understanding of civic issues, advance dialogue on public issues and foster informed choice making at both individual and collective levels (Lotz-Sisitka et al., 2017). Through participatory wildlife education, members of the public are introduced to current and emerging biodiversity challenges, in line with formal, nonformal, life-long learning avenues.

Wildlife education centres, like zoos, are considered significant and popular visitor attractions that host wild species sourced from several geographical locations globally (Agyeman & Asebah, 2022; Association of Zoos and Aquariums, 2021) and display them for recreation, leisure, and education (Carr, 2016). Together with green spaces, these modified landscapes and infrastructure play a critical segment within the tourist industry as they provide recreational, conservation, education, and research needs to diverse clients (Ballantyne & Packer, 2016; Clayton et al., 2009; Karanikola et al., 2014; Kiplagat et al., 2022; Mason, 2000; Reiser, 2012; Roe et al., 2014; Ryan & Saward, 2004; Sickler & Fraser, 2009; Tribe & Booth, 2003. Despite their importance, there are limited studies on urban green spaces in SSA and the majority world (Cilliers et al, 2013; Fermino et al., 2015; Girma et al., 2019; Kiplagat et al., 2022; Kitha & Lyth, 2011; Makworo & Mireri, 2011; Mensah, 2014; Nero et al., 2017; Odhengo et al., 2024; Shah & Irandu, 2022, and limited studies on their visitation (Biernacka & Kronenberg, 2018; Kiplagat et al., 2022; Schipperijn et al., 2010). This undermines the achievement of UN SDG Target 11.7 (UN, 2022) which advocates for provision of universal access to safe, inclusive and accessible, green and public spaces.

Despite wildlife and environmental education centres promoting environmental and wildlife conservation, there is a dearth of knowledge about the significance of these facilities in many Kenyan and East African facilities, especially African-based studies on post-visitor appraisal in small-scale urban wildlife centres. This study, conducted in Kitale Nature Conservancy (KNC), Kenya sought to establish the contribution of an urban wildlife education centre, in promoting visitor connection to nature (CTN) and awareness of conservation concerns, majoring on visitor feedback, self-responsibility and reflectance (Maurice, 1988). It also sought to establish visitor use of sensory faculties (visual, auditory, olfactory, tactile and taste) and use of signages *vis-à-vis* marketing strategies used to market the facility. KNC is unique and boasts as the only global sanctuary hosting deformed and rather distressed looking domestic animals integrated with wildlife unlike other urban wildlife centres that host only wildlife species in East Africa and beyond. This facility was chosen as an opportunistic study area based on one researcher being stationed on it during his internship. The information from this study would contribute to enhanced quality service delivery, enhance referrals, literacy and repeat patronage, not to forget marketing, staff re-tooling and diversification of visitor engagement programmes and infrastructure.

Kitale Nature Conservancy is in Kitale town, Trans-Nzoia County. It is a private low-cost tourist attraction, and doubles as urban green space in the form of a botanical garden (Onuong'a, 2019). The facility hosts over 80 species of indigenous trees; a biblical mountain replica; and a forest nature trail through an amazing forest with close to 360 species of birds; 8 species of butterflies; and over 10 mammal species. According

to Cilliers (2013) and Fratini & Marone (2011), urban green spaces are defined as "*natural or artificial areas covered with vegetation*"; and "*entire urban green infrastructure which focus on both natural and artificial ecosystems*" respectively. Kitale Nature Conservancy boasts of a variety of wildlife, horses and abandoned domestic animals.

Methodology

The study was conducted at Kitale Nature Conservancy (KNC), between August and October 2022. The study was guide by the theory of behaviour change (Hungerford & Volk, 1990), Hines Model for responsible environmental behaviour (Hines et al., 1987), Theory of Reasoned Action (Ajzen & Fishbein, 1988) and Theory of Planned Behaviour (Ajzen, 2002). Hungerford & Volk (1990) postulate that responsible environmental behaviour is a result of entry level attributes, ownership, and empowerment (major and minor variables) working in tandem to make a person be willing to protect the environment. The variables can be addressed in the education settings, be they in formal, informal and/or non-formal education such as the nature conservancies. The Hines Model opine that for responsible environmental behaviour underscores the contribution of personalities, knowledge and awareness of issues, and possession of skills to act as precursors to behaviour change and environmental education. Theory of Reasoned Action applies the Principle of Compatibility, which states that attitudes only reflect behaviour to the extent that they refer to the same valued and outcome state of being, assuming that human behaviour is based on logical cognition. According to the Theory of Planned behaviour (Ajzen, 2002), three belief structures affect how people behave: expectations of significant individuals, beliefs about the consequences of actions, and beliefs about objects that could encourage or discourage behaviour.

The study adopted a mixed quantitative survey approach, collecting both qualitative and quantitative information (twelve questions in total). In line with Creswell (2003), surveys embrace assessment of respondents' trends, behaviour and attitudes through use of questionnaires to collect qualitative data. The questionnaire comprised of two main parts, a qualitative part that focused on respondents' profile; and a quantitative part that focused on relative primary type of visit; appraisal on whether the visitor learnt something new and connection to nature. We also explored perception on individual action towards wildlife and environmental conservation; conservancy's marketing platforms; and ways signages/infographics were used by guests.

Visitor respondents to the facility (>18 years) were picked through convenience random sampling on weekends of September and October 2022. The weekends were chosen as this was the time when the facility was most populated and visitors from distant areas visited. The respondents were introduced to the study upon completing their visitation of the facility. Only those who consented to the study (recognition of respondent rights) were availed a simple questionnaire accessible through an online form link. The questionnaire was piloted and pre-tested to ensure it conforms to validity (Kothari, 2004). Confidentiality and anonymity of the respondents were also assured as the response did not jot their names on the questionnaire. The respondents were assured that there were no potential risks and costs associated with the study; and that the findings of the survey would be made available for management and public through peer-reviewed journals. The simple questionnaires sort to appraise if they learnt anything new; connection to nature; perception of importance of wildlife and environmental conservation; use of information signages; and significance of wildlife centres among other variables. Descriptive statistics was done through SPSS version and displayed as graphs and percentages. A pre-visit and post-visit self-assessment on

visitors' connection to nature was also conducted using Likert scale, to evaluate attitude towards the environment. This ranged from very poor (1) to excellent (5) as guided by Ali (2006).

One hundred respondents received the link of the in-depth interview, with only 85 (85%) responding. The forms were cleaned and only 64 responses were accepted as they met the criteria (complete the forms). Twenty-one (21) forms were rejected because the respondents did not complete the forms.

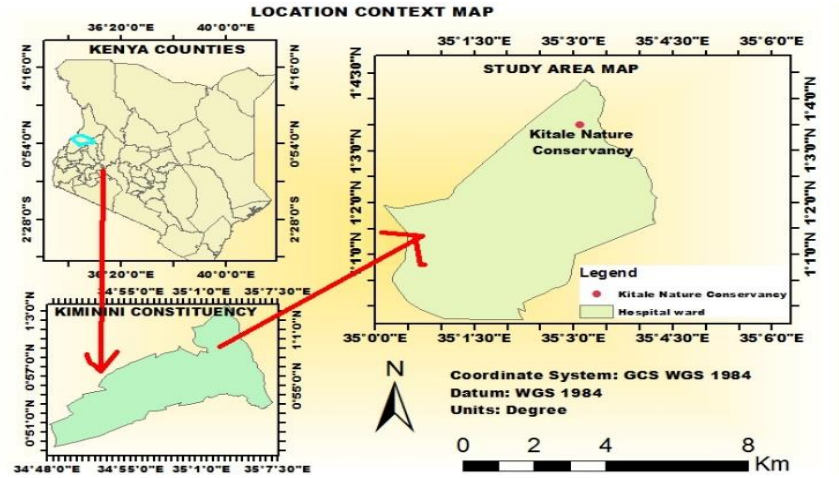

Figure 1: Location of Kitale Nature Conservancy (Authors creation)

Study Limitations

This study was restricted by certain aspects, ranging from limited consultation with the facility staff and management; tourism seasonality; small sample size; and short time to conduct the survey, thus discussions and conclusions should be treated with a degree of caution. A more comprehensive questionnaire list would have been established had the conservancy's management been consulted broadly, such as inclusion of market segments including distance travelled to visit the facility, pricing and infrastructure, security, time spent at facility, visitor seasonality, attractions for children, opinion on wildlife diversity exhibited; and attributes that would improve visitor enrichment. Since the visitors came to the facility to relax, some felt that the administered questionnaire invaded their space. It is worth noting that Kenya's Wildlife Conservation and Management Act 47 of 2013 (GoK, 2013), does not advocate for captive breeding of animals for sale to visitors.

Results and Discussion

Visitor Profile

The socio-demographic profile of Kitale Nature Conservancy visitors is presented (Table 1.)

Table 1: Profile of visitors

Variable	Classification	Number (n)	Percentage (%)

Sex	Male	35	54.7
	Female	29	45.3
Age group of respondents	20-28 years	27	42.2
	29-39 years	17	26.6
	40-57 years	14	21.9
	Over 58 years	6	9.4
Education level	Completed secondary school	2	3.1
	Still in college / university	23	35.9
	Graduated from college / university	29	45.3
	Pursing / completed Masters	6	9.4
	Pursing / Completed PhD.	4	6.3
Nationality of tourist	Kenyan	52	81.3
	From a North American country	4	6.3
	From a South American country	4	6.3
	From an East African country (not Kenyan)	4	6.3

Note: Percentages may not sum to 100% due to rounding

Male respondents attributed to 54.7% of the study as compared to 45.3% female respondents. According to previous work (Ho et al., 2005; Kiplagat et al., 2022; Rojas et al., 2016), the more males visiting the urban wildlife centre and green space can be attributed to the notion that men are comparatively stronger, flexible to travel longer distances, have more leisure time and participate more in organized and unorganized, societal gender roles, cultural norms, and safety concerns. Additionally, women visiting urban recreation facilities and green spaces are guided by safety, time availability, domestic tasks and childcare roles (Odhengo et al., 2024; Kavanagh et al., 2006). All the respondents had a minimum of secondary school education and could be a predictor of green space visitation (Kiplagat et al., 2022; Lin et al., 2014). Majority (81.3%) of the respondents were domestic tourists (Kenyan nationals), with the remaining respondents equally drawn from East African states, North America, and South American countries (6.3%). This affirms the potential for domestic tourism in supporting the industry within Kenya *vis-à-vis* African countries (Odiara, 2015). Most of the respondents (42.2%) comprised of ages 20-28 years old, followed by 29 – 39 years of age at 26.6%. Visitors of ages 40 – 58 years stood at 21.9% while respondents over 58 years old stood at 9.4%. Most of the respondents (51.6%) were walk in visitors, followed by respondents on academic trips (25.8%) and family-day out (22.6%). Visitors with special interests and referrals stood at 12.5% and 6.25% respectively.

Visitor Appraisal on Having Learnt Something New and Connection to Nature

Ninety-seven percent (96.88%) of the respondents revealed to have learnt something new about wildlife and environmental conservation against 3.12% who were neutral on the question. The pre-test visitor appraisal on connection to nature stood at 6.45%; 29.03%; 48.39 and 16.1 for extremely connected, slightly connected, neutral and not connected to nature respectively. This finding confirms that current generations are indeed progressively less connected to nature (Szczytko et al., 2020; Waswala et al., 2023). This rising divide with the nature and the environment can have adverse effects on biodiversity conservation, environmental resilience, health, and mental well-being. Interestingly, after the expedition at the facility, respondents' connection to nature stood at 6.3% for extremely connected; moderately connected 26.6%; neutral at 50% and not connected at 17.2%. This finding resonates with previous works (Lin et al., 2014)

which established that urban dwellers are persuaded to visit urban parks and green spaces based on their high affinity for and connection to nature. This is complemented by Bradley (1999) who postulated that experimental environmental learning promotes positive attitudes toward the environment, and that wildlife centres have a potential to impact on visitor emotions, emotions, behaviour and attitudes (Chiew et al., 2021; Clayton et al., 2009; Godinez & Fernandez, 2019; Mellish et al., 2019). The respondents felt more inclined to promote wildlife and environmental conservation through active tree planting; holistic waste management; and sustainable tourism after visiting the facility, thus affirming the Hines Model for responsible environmental behaviour (Hines et al., 1987). The study compliments previous works (Lotz-Sisitka et al., 2017; Waswala & Mboweni, 2019; Waswala & Mburu, 2022; Yogev & Ronen, 1982) that established hands-on-experiential knowledge can increase life-long learning emphatic understanding, precursors to sound behaviour change and empathic human-wildlife-environment nexus remedial interventions including climate change adaptation and mitigation strategies and illegal wildlife trade, in congruence with the Theory of Reasoned Action (Ajzen & Fishbein, 1988). This resonates with the UN SDG Target 4.7 (UN, 2022). Worth noting is that all respondents (100%) reported that upon visiting the conservancy, the perception of the importance of wildlife increased. This confirms that zoos, museums, and wildlife orphanages / rescue facilities have the potential to upscale and mainstream environment and biodiversity knowledge, especially since they promote experimental life-long learning experiences and connection to nature (Ballantyne & Packer, 2016; Clifford-Clarke et al., 2021; Collins et al., 2020; Kazarov, 2008; Roe et al., 2014; Shutaleva et al., 2020; Vining, 2003). They also appreciated the facility's green space and affirmed the need to protect it for future generations. This finding resonates with previous work (Barton & Rogerson, 2017; Li et al., 2019; Mgunda et al., 2022; Shar & Irandu, 2022; Okech & Nyadera, 2022; van den Berg et al., 2015) which advocate for conservation of urban green spaces and their protection from degradation and destruction since as the spaces contribute to recreation, wildlife viewing, biodiversity conservation, mental and physical health and wellness (Mitchell & Popham, 2007; WHO, 2010; Cooper et al., 2021), in congruence with Theory of Planned behaviour (Ajzen, 2002).

Visitor Awareness and Marketing Platforms of Kitale Nature Conservancy

Our study established that most visitor respondents (43.75%) knew of the facility through social media platforms with 31.25% of the respondents knowing of it via word-of-mouth. The remaining 25% came through organised trips. This finding approves previous work (Cooper et al, 2021) which established that travellers research and plan their trips online, thus digital marketing aids destination promotion, especially since these platforms can aid new and return customers access information and interact with both physical and virtual spaces. It also established that 73.44% of the respondents were first time guests while 26.56% were repeat visitors. In an increasingly competitive tourism market, it would be prudent for the facility to invest in retaining their patronage clients by diversifying tourist experiences, launching a loyalty programme with added benefits of family and/or group discounts (Mkhize, 2020), enhancing visibility, enabling real-time interaction and maximizing economic impact through phygital tourism (Neuburger et al., 2018; Zhao, 2023).

Visitor Use of signages and information centre

An appraisal of the use of the facility's signages revealed that 76.69% of the respondents read the signages an viewed them as alternative / complementary sources of information whether they were self-guided or in the presence of tour guides. 23.31% briefly scanned the signages (Fig. 2). These finding are in line with

previous studies (Agapito et al., 2013; Campelo, 2017; Choquette & Hand, 2021; Fraser et al., 2009; Weiler & Smith, 2009; Wu & Wang, 2017) which showed that signages and are critical in providing visitors with information. The study proposes the facility to update their information signages comprised of facts, origin and behaviour of wildlife, and lifespan of wildlife (Dias, 2017).

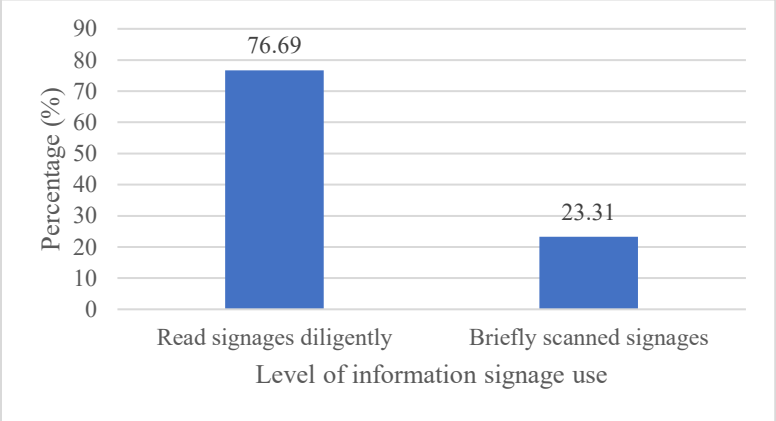

Figure 2: Respondent use of signages

Visitor Multisensory Experiences

The study established that KNC patrons used their senses when in the nature-based tourism facility. The sensory faculties identified were visual, auditory, olfactory, tactile and taste (Fig. 3). Visual (sight) was used for flora and fauna identification, coupled by reading signages and in information centres while auditory (hearing) was manifested in form of animal calls, wind in trees, rustling of leaves, and insect buzzing. Olfactory (smell) to identify plants, flowers and animals; tactile (touch) was manifested in form of touching leaves, seeds, and flowers. Taste was the least used sense due to the limited knowledge and availability of edible plants (wild fruits) to consume.

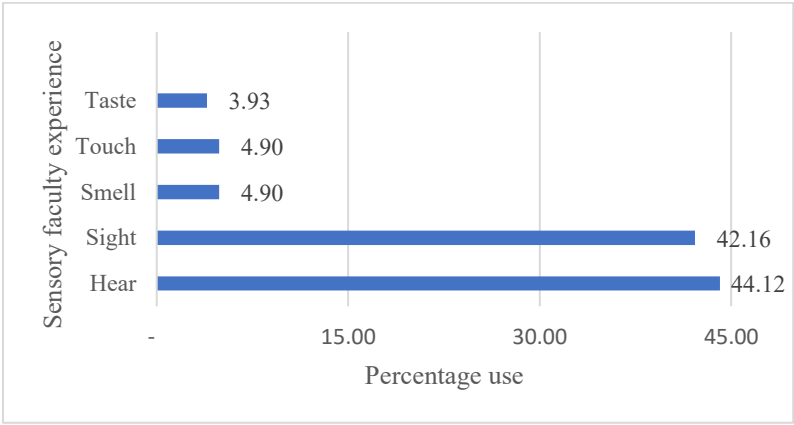

Figure 3: KNC Patron Multisensory Experiences and Level of Use

The interpretation of the results is in congruence with previously studies that nature visiting patrons use and appreciate multisensory experiences while in nature (Kim & Fesenmaier, 2017; Meacci & Liberatore, 2018; Shahhosseini et al., 2014). According to Agapito et al. (2012), Finlay et al. (2015); Hedblom et al. (2019) and Truong et al. (2020), pleasant olfactory (smell) stimulation associated with nature can improve

human wellbeing and aid reduce stress, while Walker & Hiller (2007) postulated that listening to natural sounds such as bird chirps can reduce the feeling of loneliness. These findings can be used by KNC to enhance memorable experiences by patrons, boost visitor attitudes and behavioural intentions; encourage repeat visitation and recommend KNC as a touristic destination (Agapito et al., 2013, 2014; Babuin, 2023; Buckley, 2022; Guzel & Dortyol, 2016; Yang et al., 2021).

Visitor Motivation Factor to Visit Facility

The study established that KNC patrons are primarily attracted to the facility to spend time outdoors and connect to nature (35.8%). This was followed by the need to see conservation in action (26.6%) and learning something new (25%). The facility was also used as a platform to spend time with those the patrons cared about (9.4%). Price was the least motivating factor (3.1%).

Visitor Appraisal to Feeding / Touching Animals

The study established that 87.5% of the KNC patrons neither touched not fed docile animals within the facility as compared to 12.5% who did. In as much as touching docile animals can result into increased connection to nature, caution must be taken as it could potentially lead to spread of zoonotic diseases (Conrad et al., 2017; Wesse et al., 2007; Wong et al., 2003), modify animal behaviour towards humans and stress animals (Dubois & Fraser, 2013; Farrand et al., 2014; Sade, 2013. For this reason, KNC should emphasize the "*Do's and Don'ts*" in wildlife centres. Additionally, KNC should install adequate number of functional handwashing stations with soap in appropriate locations, urging patrons to wash their hands after physical interaction with animals.

Conclusion

Urban wildlife centres and green spaces are essential in promoting lifelong learning opportunities that champion wildlife and environmental knowledge, as they avail hands-on experiential lifelong knowledge essential for positive behaviour change and empathic human-wildlife-environment interventions. The study identified the role of these recreational urban spaces in relative contribution to visitors' connection to nature; individual action towards wildlife and environmental conservation; and levels of signages were used by guests. We propose KNC improves signage contents, develops sensory trails and embraces segment specific marketing. The study proposes future exploration on the level of signage use based on erected location; appropriateness; legibility, design and aesthetics; languages used; and information of animal welfare. It recommends KNC to invest more on its marketing platforms and communication strategies (Clark et al., 2014) and installation of functional and equipped handwashing stations to mitigate and avert potential zoonotic pathogen transmission (Ibarra et al., 2021). The study identified a gap on wildlife welfare knowledge management, especially with an African perspective. Finally, it recommends an appraisal on walkway by guests an Importance-Performance Analysis (Oh, 2001) of the facility that would guide decision making.

Author Credit

BW: Conceptualization; Methodology; Supervision; Writing – original draft; Writing – review & editing; Formal analysis; Data curation; Visualization, Validation
FJ: Conceptualization; Writing – review & editing
JT: Project administration; Data curation
NS: Formal analysis; Writing – review & editing

Competing interest statements

The authors declare no conflict of interest. All authors have read and agreed to the published version of the manuscript.

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