

SOCIO-ECONOMIC FACTORS DRIVING PRIMATE TOURISM AND COMPOUNDING HUMAN-NON-HUMAN PRIMATE CONFLICTS WITHIN URBAN GREEN SPACES: CASE OF NAIROBI CITY PARK

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ABSTRACT

Green spaces such as parks and sports fields are a fundamental component of any urban ecosystem by playing a critical role as wildlife refuge, recreation centers and offering a myriad of environmental services. The Nairobi City Park is one such green space within Kenya's capital city offering a serene environment for recreation to the city dwellers. The desire to boost the economic gains provided for by the resident nonhuman primates (Highland Sykes and Vervetmonkeys) by promoting close interactions with tourists is escalating human-nonhuman primates conflicts within the park. This study evaluated the economic, cultural and social aspects driving human-nonhuman primate conflict at and around the park. Additionally, the role of entrepreneurs at the city market, photographers, park wastemanagementpracticesinshapingtheconflict visitors, cultural beliefs, and wasassessedusingclosedandopen endedquestionnairesbetweenMayand August2018.Despitepoorwastemanagementbeinghighlightedasthemain source of conflict (56%), a good percentage of the respondents (32%) attributed the problem to feeding of monkeys by the tourists. However, 76% of the tourists blamed photographers who provide commercial feeds for enticing monkeys during photo session. Notable was the high liking of monkey's presence around the park by a large percentage of hawkers and market traders (84%) due to enhanced bait sales. A large proportion of the respondents (59%), however, believe it is their God given duty to feed the monkeys. Additionally, the Asian community was blamed for supplying monkeys with bananas to gratify their cultural beliefs, and further promoting overdependence on provisioning. Despite understanding the technical aspects of human-nonhuman primate conflicts resolution, this study unveils the complex social and economic factors requiring redress when initiating comprehensive and interdisciplinary approaches for promoting primate tourism and long-term management of human-wildlife conflicts within urban green spaces. Keywords: Urban green spaces; provisioning, primate tourism; cultural beliefs

INTRODUCTION

Human-nonhumanprimateconflictsoccur whenhumansexperiencecostasaresultofprimatepresence(Hill,2018). A number of costs are associated with primate coexistence including injury, damage to property and crops and zoonotic diseases transmission. Consequently, the rising level of interactions between humans and primates is increasingly becoming one of the challenges facing primate conservation as conflicts emerge (Hockings, 2016). Human-nonhuman primate conflict is one of the most widespread human-wildlife conflict and an obstinate issue facing conservation biologists today (Dickman, 2010). The problem has been exacerbated by the rapidly growing phenomenon of primate tourism in both urban and rural areas (Russon &Wallis, 2014). Primate tourism ideology aims at generating revenue by using nonhuman primates as the focus in wildlife tourism (Matheson, 2017).

Wildlife tourismis a sustainable approach of securing economic benefits while supporting wildlife conservation and local livelihoods (Ashley and Roe, 1998; Manfredo, 2002). For wildlife tourism to be sustainable, it requires consideration of its impacts on the environment, human communities, tourists and the tourism industry (Higginbottom & Scott, 2004). In the recent past, the concept of Triple BottomLine sustainability which focuses on economic prosperity, environmental quality and social justice is being adopted in tourism business (Colbert & Kurucz, 2007).

This form of tourism which is based on the natural environment and advances the economic wellbeing of the community is referred to as ecotourism (Orams, 1995). Tourism that involves visitor interaction with wild animals is however, increasingly attracting interest in the tourism industry and researchers due to the diversity of experiences offered (Higginbottom & Scott, 2004).

In many primate habitat countries, community-based conservation initiatives have in the recent past promoted primate tourism (Hill, 2002). This entails interacting with monkeys in the anticipation of achieving conservation goals as well as financial and educational benefits (Berman *et al.*, 2007). The initiative is however experiencing serious a shortcomings as it involves close contacts with humans, provisioning and ultimately affecting nonhuman primate behavior (Wallis & Lee, 1999; Woodford *et al.*, 2002). Provisioning for religious reasons has also greatly facilitated primatetourismespeciallyin most macaquetouristies and oftenbeing near Hinduand Buddhist temples (Fuentes, 2010). In this case, feeding monkeys is considered sacred and a means to obtaining spiritual merit by the religious devotees (Zhao, 2005). Macaques at the tourists and/or religious sites are mostly conditioned to receiving food from people and will rarely forage on wild foods (Hill, 1999). Monkeys are then conditioned to associating visitors with potential foods resulting in an extreme form human-nonhuman primate conflict (Zhao, 2005). Close contact is also associated with stress in wild primates (Macfie & Williamson, 2010; Kinnaird & O'Brien, 1996), over habituation and hyper aggression (Grossberg *et al.*, 2003) and changes in habitat use and activity patterns (Treves & Brandon, 2005).

In urban areas where wildlife and humans have coexisted for a long period, urbanization which is associated with land use and land cover change and an increase in human population has resulted in substantial changes toecosystemstructureandprocesses (Grimm*etal*.2008).Thishas resultedinchallengingenvironmentsfor wildlifeto survive (McKinney, 2008). These urban areas are however, made up of a complex habitat mosaic containing a mixof buildings, streets, and green spaces (Mazerolle and Villard, 1999) which can support a variety of wildlife species. Additionally, the green spaces in urban areas provide individual relaxation, nature enjoyments and a run-away from the city life (Cheisura, 2004). Still, if well managed, urban green spaces tend to facilitate social interactions, enhanced community life, community safety, opportunities for scientific research and ecological benefits (Kuo & Sullivan, 2001; Conover, 2001). Moreover, these green spaces have significant economic impact due to enhanced businesses revenues as more people congregate in these areas (Wolf, 2003).

In many developing countries where human population density is high, animals in urban green spaces interact with humans and the interaction can either be positive, neutral or negative. Negative interactions, referred to as humanwildlife conflict, typically occur at the vicinity of natural habitat patches and/or green spaces (Poessel*et al.* 2013; Teixeira *et al.*, 2016). In many instances, the outcome of the conflict is dependent on the socio-economic, cultural and political context and a conflict in one context may not be considered such in another (Mascia *et al.*, 2003; McIntyre *etal.*,2008).Understandinghowindividualsand communitiesviewand respond to wildlifeisthereforethe starting point to dealing and managing potential human-wildlife conflicts in urban green spaces. In this study, I soughtto determinethedynamicsofhuman-nonhumanprimate interactionsinoneofthe most visited greenspacein Nairobi, the City Park. The park is home to two primate species, highland sykes (*Cercopithecus mitis kolbi*), and vervet monkeys (*Cercopithecus aethiops hingerti*) constantly interacting with the high number of traders and park visitors. Specifically, the study evaluated the nature of interactions, factors driving these interactions and human perceptions on the interactions. The findings provide a background to handling the escalating human-nonhuman primate conflicts within and outside the park.

METHODOLOGY StudyArea

Thisstudywasdoneatthe CityParklocated3 kmfromNairobicitycenterat 1^016 '- 1^015 'Sand 36^049 '- 36^049 'E.The parkcovers150acresandsurroundedbyLimururoadtothe West,Forestroadtothe southandMuthaigaroadtothe East (Figure 1). Ithas an estimated 50 indigenous trees species, 300 birds species, sykes monkeys (*Cercopithecus mitis kolbi*), vervet monkeys (*Cercopithecus aethiops hingerti*) and suni antelope (*Neotragusmoschatus*). City Park was established in 1948 to serve Parkland neighborhood. Over 50 acres of land has since been lost due to illegal alienation to private developers. Currently, the park is in poor conditions due to poor maintenance with the few old dustbins mostly filled with uncollected solid waste (Chege, 1992). The park is an important recreation area to thecity residents. Mostly, visitors get involved in forest walks, resting, picnics, bird watching, photography, joggingand team building. Despite the high number of park users, waste management is a serious challenge with Bowling Green Restaurant and Hawkers market dumping grounds being an ecological and health hazard.

METHODS Sampling

In this study, questionnaires were used during data collection and targeted park users including visitors, traders, photographers and park management. Questionnaires was designed to gather information on economic, social and cultural benefits derived from the park, challenges faced, perception on primate interactions and the future ofprimate populations within the park. To capture detailed information from park users, both closed and open ended questions wereused. In the sampling frame, astratified sampleof90 questionnaires wasadministered targetingboth gender. Target respondents were grouped according to age categories of 15-25 years, >25-45 years, >45-60 years were 60 years. Those below 15 years were considered too young and therefore not sampled.

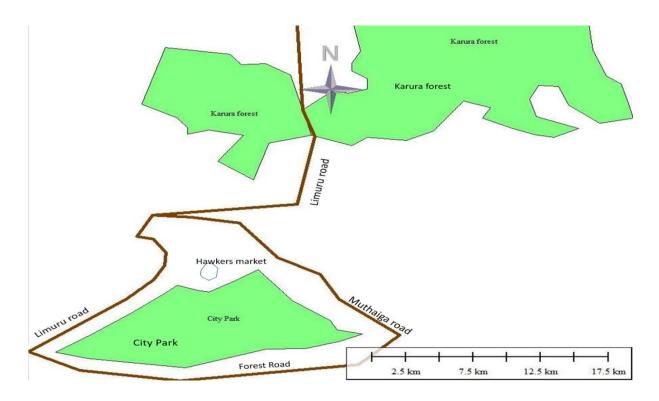


Figure1: Mapshowingthelocation of CityPark, Nairobi

Datacollection

Data was collected for three consecutive days, Friday, Saturday and Sunday, in the first weekend of June and July 2018whentheparkisactivelyusedbythevisitors.Duetotheirlownumber, questionnaireswereadministeredtoall the photographers utilizing the park. Additionally, all the traders selling inside the park were interviewed while atthe Hawkers market outside the park, questionnaires were systematically administered to every third trader selling within the semi-permanent stalls. Questionnaires were administered inform of interviews conducted in Swahili and English language.

Dataanalysis

Statistical Packages for Social Scientists (SPSS) was used to analyze the data and present results graphically using tables. Frequencies and percentages were used to analyze for descriptive statistics while chi-square (χ^2) was used to test for significance differences.

RESULTS

The largest proportion of City Park users interviewed were visitors (54%) largely comprising of women (52.7%). Apparently age group 15-25 years old utilized the park more (44%) with a significant variation in park users ages categories (χ^2 =4.54, df=3, p>0.05). Most of CityPark users are not from the neighborhood (84.9%) and mainly visit the

park over the weekend.

Benefitsfromthepark

Despite a large proportion of respondents benefiting from the park economically (56.4%), there was no significant difference on how different users benefited from the park (χ^2 =85.17, df=15, p<0.05). All the respondents were satisfied with the services received from the park. However, 41% of those interviewed felt that pollution may affect their satisfaction if not checked.

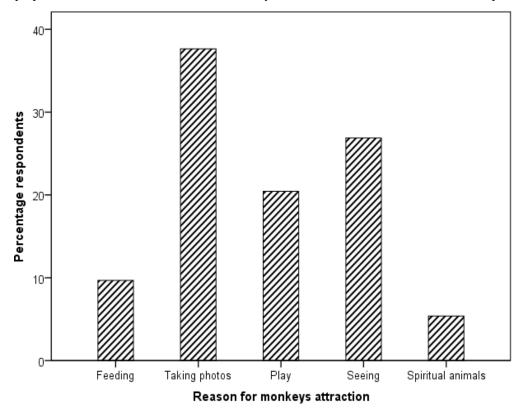
A good proportion of users visit the park for business (44.1%) and photography (23.7%), however, the variation on why different users visited the park was not significant (χ^2 =79.9, df=19, p<0.05). Monkeys were cited as the most valuable resource within the park (93.5%) and park users derived different benefits from them. Hawkers largely sell bait to visitors who then take photos with the monkeys (Table 1).

		Benefitsfrommonkeys					
		Feedingthem	Takingphotos	Play	Sellbait	Spiritual animals	
ParkUser	Photographer	0	6	1	1	0	8
	Hawker	0	0	4	23	0	27
	Visitor	7	28	13	1	5	54
	Management	2	1	1	0	0	4
Total		9	35	19	25	5	93

 Table1:BenefitsderivedfrommonkeysbytheCityParkuserscrosstabulation

CityParkAttraction

The presence of well habituated population of monkeys attracted a large proportion of City Park visitors (54.8%) while others prefer the fresh air (32.3%) and space (12.9%) at the park. The preferred park attraction was however not significant between users (χ^2 =20.31, df=6, p<0.05). City Park users were attracted to the monkeys for varied reasons including photography, seeing them, feeding them for fun, play with them and visiting a spiritual animal (Figure 2). A good proportion of visitors however, felt that monkeys tend to affect their comfort while at the park (17.2%).



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Figure2:Parkuser'sreasonsforvisitingCityPark Primate

Conflict

A large proportion fed the monkeys (87%) especially when taking photos (33.6%) and having fun (22.6%). The general feeling however, was that monkeys are problematic animals (93.5%) because they tend to inflict injuries, snatch things from park users, steal food or even damage property (Figure 2) with no significant difference on how men and women perceive the conflict (χ^2 =2.17, df=3, p<0.05). Most of the respondents felt that the monkeys were problematic because it is their nature to be aggressive (38.7%); others felt that they did not have enough wild food (36.6%) while a good number associated the aggression the large population fmonkeys at the park(21.5%). The reasons given by different park users for monkeys being problematic was significant (χ^2 =11.84, df = 9, p>0.05).

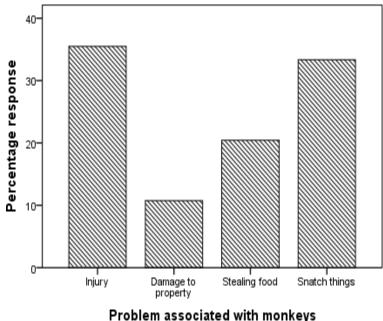


Figure2:CityParkuser'sviewsontheproblemsposedbymonkeys.

Most of the respondents attributed poor waste management (56%) to the escalating problem at the park. Additionally, feeding of monkeys by the tourists was cited as a key driver to the conflict (32%) while 10% felt that monkeys did not have enough food at the park. The variance on how different park users perceived the reason forthe rising number of problematic monkeys was significant (χ^2 =11.8, df=9, p>0.05). However, 87.1% of the respondents do feed the monkeys with 59% of them thinking that monkeys cannot fed for themselves and it is their dutyto feed them while 34% feed the monkeys to lure them while takingphotos. The reasongivenbythe park users for feeding the monkeys was however not significant (χ^2 =29.3, df=12, p<0.05).

ReasonfortheConflict

Photography business at the park was largely blamed for the conflict (76%) because a large number of visitors coming to the park are interested in taking photos with the monkeys (37.6%). Afewpark users feed the monkeys as a cultural practice (Figure 3).

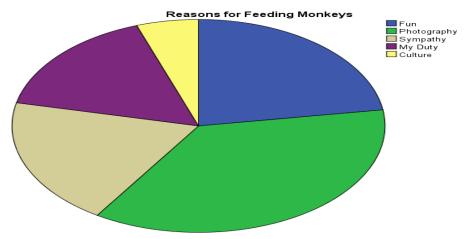


Figure 3: Reasons given by CityParkusers for feeding the monkeys

To resolve the problem, 94.6% of the respondents did not support the idea of relocating the monkeys. They had varied reasons for preferring the monkeys within the park (Table 2) despite them being problematic. The few park managers interviewed prefer having the monkeys around the park (75%) due to the income generated from photographers and hawkers licenses sales.

		Preferthemonkeys					Total	
		Sourceoffun	Source Income	of	Spiritualanimal	Support Education		
ParkUser	photographer	4	4		0	0	8	
	hawker	4	22		1	0	27	
	visitor	30	9		8	7	54	
	management	1	3		0	0	4	
Total	-	39	38		9	7	93	

Table2:ParkUsersreasonforpreferringmonkeyswithinCity Park

DISCUSSION

AttractionandbenefitsfromCityPark

The City Park is one green space within Nairobi city which is providing not only environmental services but also social, recreation, cultural and economic services to the city dwellers. Interestingly, most of the City Park users are not from the neighborhood despite being alienated to serve the neighboring Parklands community. This is a community dominated by high and middle class people who prefer less crowded attractions. Being open to the general public, the park is however, a major attraction for that city population which cannot afford paid tourism. It provides an opportunity for social interactions away from busy city life. A few people, especially the aged visit the park to pray while a good number of prefer visiting the park because they can play with the well habituated monkeys. Thus, they provide food to attracting the monkeys them closer, making them more human dependent (Reddy,&Chander,2016)andforaginglessinthewild.Monkeyseventuallybecomeconditionedtotreatingvisitors as potential feeders (Zhao, 2005) and forcefully demand for food.

Despite having become a big nuisance, all the park users felt that monkeys are the most beneficial resource in the park. The benefits derived from the monkeys by various park users were mutually related. Park visitors prefer playing with the monkeys or just feeding them. To lure the monkeys, these visitors buy the food (including fruits, corn, sweets and nuts) from the hawkers. These hawkers felt that monkey's presence at the park boosted their sales especially over the weekend when most people visited the park. Park visitors were particularly exited taking photos with the monkeys and to get them closer they buy luring bait from the hawkers. Photography business is well promoted by the presence of nonhuman primates since those visiting the park were largely interested in close interactions with monkeys. Such tourist-wildlife interaction has been associated with a number of negative impacts including effects on primate behavior, human injury, aggression and diseases transmission especially when deliberate or accidental feeding takes (Burger, 1997).Interestingly, the few Asians interviewed come from the neighborhood place and primarilyvisitCityParkto feed the monkeysfor culturalpracticesince monkeysin manypartsof India are venerated as gods (Radhakrishna, 2013).

Primateconflict

The cause of human-nonhuman primate conflict at City ark is closely linked to the benefits park users derive from the monkeys. Feeding while seeking contact was one way in which park visitors had fun and were able to takephotos with the monkeys. The problemis that monkeys tend to develop a taste for human foods, they lose their fear of humans and become proactive and aggressive when seeking human food (Lee & Priston, 2005). At the park, monkeys have come to associate bags with food and will snatch bags and in the process injure the visitors. The conflict at the park is particularly interesting in that it has arisen from a positive desire to contact monkeys. This problem had been reported temples tourist lodges, camps where monkeys fed in Japan in and are and China(Brennanetal., 1985; Else, 1991; Fuentes, 2006). The general premise was that monkeys cannot feed for themselves and it is man's duty to feed them. Additionally, people were sympathetic of the monkeys due to their high numbers and perceived lack of wild food in the forest. Interestingly, a majority of respondents felt that monkeys are naturally aggressive and nothing much has changed in the observed behavior. Still, the culture of a large Asian population neighboring City Park perceive monkeys as objects of worship representing Hanuman, the monkey god, hence consideringittheirsacreddutytofeedthemdaily(Fuentes, 2006; Pragatheesh, 2011). Thisdevotionto

provisioning has resulted in overreliance on human foods and monkeys hang around the open park areas and paths waiting to be fed. Dependence on human food is the root cause of the conflict at City Park.However, the monkey food business at the park is a keyeconomic gain for hawkers and camera men who are not keen on having monkeys relocated from the park as a conflict mitigation measure

Poor waste management was cited a factor which could potentiallyaffect visitors comfort at the park. However, this waste is a major source of food for the monkeys and in many instances, groups of monkeys would be seen turning garbage looking for food. Availability of food waste in the open bins and compost pits has drastically alteredprimatebehavior when theyeasilyaccess food,affectingtheir natural foragingbehavior, becomeover reliantonthis food source and ultimately compounding conflicts with humans (Oro *et al.*, 2013). Additionally, food waste mayend up changing their dietary preferences making them choose human foods over wild food resources. Availability of food wastes have also been reported to influence population dynamics, behavior and habitat use (Strum, 2010). Theimpactsofpoor waste managementatCityPark,onresident monkeypopulationdynamics,behavior and habitat use however, require further investigation.

CONCLUSION

Understandingthecomplexity ofdriversofhuman-nonhumanprimate conflicts critical indeveloping mechanisms to mitigate the conflicts. We need to identify sustainable ways of maximizing on the benefits that human-nonhuman interactions can bring. The value which people have placed on the interactions with primates provides the foundation for their conservation, whether they want to see interactions enhanced or reduced. At City Park, conflict resolution will require an integrated approach by developing a comprehensive framework addressing the social, economic and cultural needs of park users. Effects of the observed human-nonhuman primate interaction onprimates ecology including foraging behavior, social tension, diseases and population dynamics, however requires better understanding for a more inclusive framework.

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