AN ASSESSMENT OF HUMAN-MONKEY CONFLICT IN URBAN COMMUNITIES IN LAGOS STATE, NIGERIA

Olaleru, F.[1,2], Ogunfuwa, A.A.[1] and Omoregie, Q.O.[2]
[1]Department of Zoology, Faculty of Science, University of Lagos
[2]Centre for Biodiversity Conservation and Ecosystem Management,
University of Lagos, Lagos State, Nigeria.
* Corresponding Author: folaleru@unilag.edu.ng

ABSTRACT

Human population increase in urban areas leads to loss of urban wildlife habitats. Habitat loss not only affects wildlife populations but causes conflicts with resilient urban wildlife species like the mona monkey (Cercopithecus mona). This study was carried out between March and July 2018 and aimed at assessing the population of mona monkeys, occurrence, and causes of Human-Wildlife Conflict (HWC) involving this species in four urban communities, Soluyi, Magodo, Agiliti, and University of Lagos. Data collection was through total count of monkeys encountered and administration of 200 structured questionnaires. Descriptive and inferential statistics were used for data analyses. University of Lagos had the highest troop size of 19, Magodo and Agiliti had 6 individuals each and Soluyi had 2 individuals. All the 175 respondents indicated the occurrence of HWC in their communities. Presence of fruit trees in peoples' compounds and lack of food in monkeys' habitats were the main causes of HWC as indicated by 99.7 % and 90.8 % of respondents respectively. Only age of respondents had significant difference on their opinions and HWC. Age of respondents had significant effect (F = 3.00, P < 0.05) on their opinion on causes of monkey raids. The presence of monkeys in these locations implied that the area was their natural habitats. The highest number of monkeys in University of Lagos is attributed to vegetation cover. The depleting habitat and low population of mona monkeys in urban areas requires the designation of protected urban forests for the species' population recovery and conservation.

Keywords: Communities, human wildlife conflict, mona monkeys, urban, wildlife.

INTRODUCTION

Wildlife has existed in urban areas for as long as humans have lived in settlements (Carl and Piran, 2015). Urbanization has led to the loss of species that have specialised breeding locations or habitat requirements. As human population expand and natural habitats shrink, people and animals are increasingly coming into conflicts over living space and food. These effects make urban areas challenging environments for wildlife to survive in and have profound impacts at all levels for the plant and animal communities that live there

(McKinney, 2002; Miller and Hobbs, 2002). The impact of urbanization on the environment is substantial and can result in great changes to ecosystem structures and processes (Grimm *et al*., 2008). Human encroachment into wildlife habitats, has led to the subsequent constriction into marginal habitat patches and direct competition by wild animals with local communities (Musimbi, 2013).

Human wildlife conflicts (HWC) has caused severe environmental impacts, which has led to extirpation or extinction of exposed species, due to injury and death caused by humans (Ogada *et al*., 2003). The wildlife death could either be accidental or intentional, caused by retaliatory shooting, poison or capture. Such human-induced mortality affects not only the population viability of some of the most endangered species, but it also has great environmental impacts on ecosystem equilibrium and biodiversity preservation.

Previously, HWC was considered a rural or agricultural problem that mainly affects communities living in close proximity to forests (Messmer, 2000). However, with increase in human population and expansion of human developmental activities, HWC incidences are now common in urban and suburban areas (Soulsbury and White, 2015). Urban/suburban HWC incidents typically involve wildlife species that have a history of coexistence with humans or the ability to survive in human-dominated environments.

The mona monkey (*Cercopithecus mona*) is an Old World monkey, belonging to the Cercopithecidae family of primtaes. It is native to the lowland forests of eastern Ghana, Togo, Benin, Nigeria and Western Cameroon (Matsuda Goodwin, 2007). Although mainly a forest species, it is able to adapt to heavily degraded forests, gallery forests in savannah regions and mangrove forest. In Nigeria, there has been reported incidence of mona monkeys entering students' hostels and lecture rooms (Olaleru, 2015). Between March and April, 2018, there were reports from the print media disclosing the plight of some Lagos residents that were been disturbed by monkeys that resided near the community. It is possible that such proximity could cause HWC.

This study was aimed at establishing the presence, and determining the population of mona monkeys in University of Lagos, Akoka campus, Soluyi (Gbagada area), Agiliti, (Mile 12 area), and Magodo communities in the mainland of Lagos State. It also investigated the incidences of HWC (particularly with monkeys) in these locations, the opinion of residents to causes of the conflicts, and conservation of the monkeys. Apart from the University of Lagos where the presence of mona

monkeys have been established (Olaleru and Egonmwan, 2012), other locations were surveyed because we got informal reports from community members about the presence of the animal in those areas.

MATERIALS AND METHODS

Study area
This study was carried out in four locations in Lagos State that were identified to have thriving or relic population of mona monkeys. These were Soluyi (6°33'58.9"N 3°23'12.3"E) in Gbagada area, Magodo Phase 2 (6°37'28.6"N 3°22'55.7"E), Agiliti (6°37'20.9"N 3°23'26.2"E) near Mile 12, and the University of Lagos, Akoka Campus (6°31'48.0"N 3°23'46.0"E) (Fig. 1).
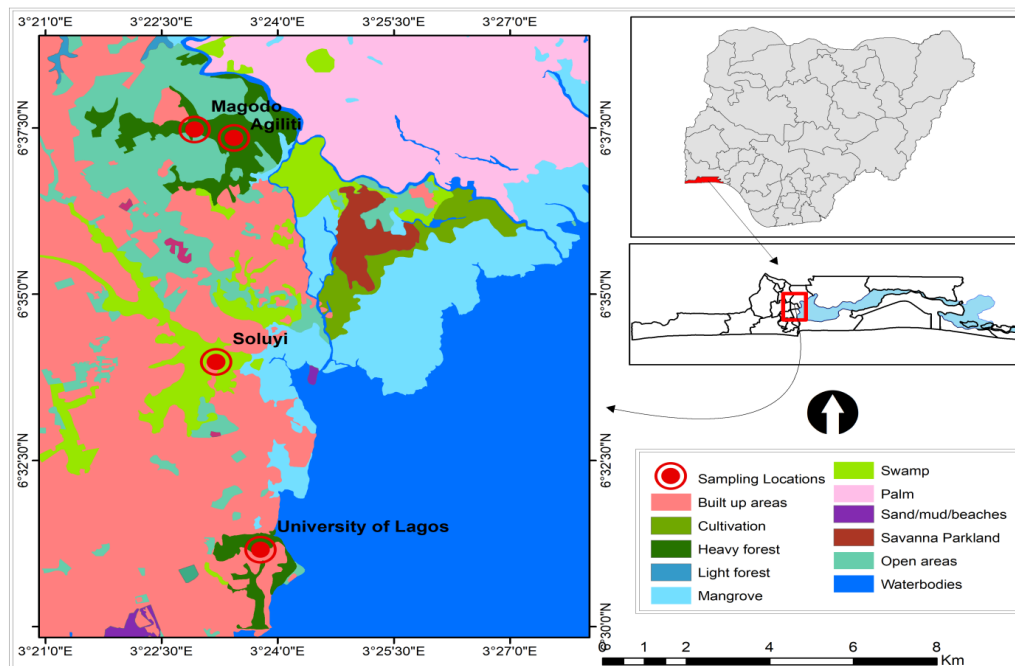

Fig. 1: Map of Lagos State with study locations

Data collection
The population of monkeys in the locations was determined using total count method (Pruetz and Leasor, 2002; Plumptre *et al*., 2013). One observer enumerated all the sighted monkeys in each location at specified periods of the day when the monkeys were easily observed. Population counts of sighted

troop(s) in each location were conducted at least once every week for three months (March, April, and May) in 2018. The counts were conducted between 0630 and 0715, or between 1730 and 1845 hours when they went for, or returned from foraging respectively. The average values of the counts were taken as the estimated populations (Pruetz and Leasor, 2002).

Other data were obtained from residents in these communities through random administration of 200 copies of a two-paged structured questionnaire with 44 items. The items elicited information on socio-demographic of respondents, their estimate of troop number and size of mona monkeys, opinions on causes, and frequency of monkey raids, monkey-human cohabitation and interaction, prevention of monkey raids, and possible ways of mona monkey conservation.

The parameter used to determine HWC was the opinion of respondents on the raiding activities of monkeys to human facilities and human attacks on the monkeys. A five-point Likert-scale.

Data analysis
The data were subjected to descriptive and inferential statistics using SPSS (Version 25). Mona monkey population estimates, socio-demographics, and the opinion of respondents were analysed descriptively. The responses to the Likert statements under 'SA' (Strongly Agree) and 'A' (Agree) were summed up as 'agreed', while those under 'D' (Disagree), and 'SA' (Strongly Disagree) were summed as 'disagreed'. Analysis of variance was used to determine the effects of socio-demography of respondents on their opinion on causes of HWC and conservation of monkeys. Means were regarded significant at $P < 0.05$. Where this was found to be significant at $P < 0.05$, Scheffe post hoc test was used to determine the factor(s) that were significantly different.

RESULTS

Estimated population of mona monkeys in study locations
The mona monkey population in the study locations showed that the University of Lagos, Akoka campus had the highest population of mona monkeys with 19 individuals, Magodo and Agiliti had six individuals each, while the lowest population of two individuals was recorded in Soluyi.

Socio-demography of respondents

A total of 175 questionnaires were retrieved from the respondents. Table 1 showed the socio-demography of the respondents. Only 21.1% were less than 20 years, 36.6% were 20 – 29 years, 22.9% were 30 – 39years, 9.7% were 40 – 49 years, while 9.7% were >50 years. Males made up 52% of the respondents while 48% were females. Majority of the respondents (50.3%) had secondary education, and 34.9% had tertiary education. Most of the respondents (95.4%) were residents while 4.6% were visitors. Among the residents, 19.2% were property owners while 80.8% were tenants. Only 35.9% of the residents have lived in the community for less than 2 years, 29.9% have lived in the community for 2 – 5 years; 12% have lived for 6 – 9 years while 22.2% have lived for 10 years and above in their community.

Table 1: Socio-demography of the respondents

Variable	Frequency	Percentage
Age group (N=175)		
Less than 20	37	21.1
20-29	64	36.6
30-39	40	22.9
40-49	17	9.7
50 years and above	17	9.7
Gender (N=175)		
Male	91	52.0
Female	84	48.0
Qualification (N=175)		
None	2	1.1
Primary	24	13.7
Secondary	88	50.3
Tertiary	61	34.9
Status in the community (N=175)		
Resident	167	95.4
Visitor	8	4.6
Resident Status (N=167)		
Landlord	32	19.2
Tenant	135	80.8
Years lived in the community (N=167)		
Less than 2 years	60	35.9
2-5 years	50	29.9
6-9 years	20	12.0
10 years and above	37	22.2

Raiding incidence by mona monkeys: A sign of HWC
Result on the incidence and frequency of the monkeys' raids to human properties in the study communities is shown in Table 2. Many respondents (65.1%) indicated that raiding had occurred around them; 3.5% indicated that government was responsible for managing areas where the raids took place, while 84.2% were of the view that their community was responsible for the management of the areas mona monkey raids took place.

On raiding of personal facilities by monkeys, 41.7% of the respondents indicated their facilities had been raided previously, while 58.3% did not experience such. Of those that had encountered monkeys raids, 63.0 % indicated the monkeys raided their fruit trees; 28.8% expressed they raided foodstuffs in the kitchen, while 8.2% indicated the monkeys scavenged from the dustbins.

On the regularity of raiding occurrence, 37.0% of the respondents indicated daily, 27.4% indicated weekly, and 16.4% indicated monthly. Most respondents (93.1 %) did not kill the monkeys, for reasons that were not disclosed. Only 6.9 % of the respondents did kill the monkeys. Among those that killed the monkeys that invaded their facilities, 75.0 % used traps, while 25.0 % used guns for their operation.

Frequency of raids and estimates of cost of damages
The number of times respondents suffered raids by mona monkeys was shown in Table 3. Most respondents (69.9 %) did not indicate the frequency of monkey raids, while the rest had suffered it once, twice, thrice or several other times. These raids were most frequent between January to March (58.33 %).

Estimation of mona monkey troop size and major raiding activity
The number and size of troops respondents estimated were shown in Table 4. The highest number of troops as indicated by 53.1 % of respondents was 2. The highest troop size (number of individuals in a troop) was 20, while 45.0 % of respondents indicated that the mona monkey population was declining.

On the negative impacts caused by monkeys during raiding, 1.7% of the respondents specified injury; 31.4% indicated stealing of goods; 0.6% indicated transmission of diseases, 12.6% indicated destruction of properties while 53.7% did not respond to the question. On the estimated cost of damage caused by the monkeys during raiding, 0.6% indicated between N6,000 – N10,000, 6.3%

indicated between N1,000 – N5,000, 34.9% indicated less than N1,000 while 58.3% did not specify the amount.

Table 2: Incidence and frequency of monkeys' raids on properties of respondents

Variable	Frequency	Percent
Is there a place in your area where raiding incidence has occurred? (N=175)		
Yes	114	65.1
No	61	34.9
Who is responsible for managing places raided by monkey (N=100)		
Government	4	3.5
Community	96	84.2
Have monkeys ever raided your facility? (N=175)		
Yes	73	41.7
No	102	58.3
If 'Yes', what did they raid on (N=73)		
Fruits	46	63.0
Kitchen stuffs	21	28.8
Scavenge from dust bin	6	8.2
Frequency of occurrence of raiding (N=73)		
Daily	27	37.0
Weekly	20	27.4
Monthly	12	16.4
Seasonally	14	19.2
Have you ever killed a monkey that invaded your facility? (N=175)		
No	163	93.1
Yes	12	6.9
Method of killing the monkey (N=12)		
Traps	9	75.0
Shooting with gun	3	25.0

Table 3: Frequency and season of raids by mona monkeys

Variable	Frequency	Percent
Number of Times monkeys raid (N=73)		
1	3	4.1
2	8	11.0
3	6	8.2
4	1	1.4
5	3	4.1
7	1	1.4
Not specified	51	69.9
Time of the year monkeys raid (N=12)		
January - March	7	58.33
April - June	2	16.66
July - September	0	0.00
October-December	2	16.66
Not specified	1	8.33
Season monkeys raid (N=14)		
Wet	4	28.57
Dry	5	35.71
Both	5	35.71
Do monkeys still raid your facility (N=73)		
Yes	49	67.1
No	24	32.9

Table 4: Mona monkey troop number and size, damages caused, and estimated cost of damages

Variable	Frequency	Percent
Number of troops (groups) of monkey respondents have sighted		
3	3	1.7
2	3	1.7
1	93	53.1
Not specified	76	43.4
Number of individuals in a troop		
Greater than 20	3	1.7
11-20	2	1.1
5-10	46	26.3
Less than 5	48	27.4
Not specified	76	43.5
Is their population reducing or increasing in recent times?		
Increasing	21	12.0
Reducing	78	45.0
Not specified	76	44.0
Harms caused by monkeys during raids		
Injury	3	1.7
Stealing of goods	55	31.4
Transmission of diseases	1	0.6
Destruction of properties	22	12.6
Not-specified	94	53.7
The estimated cost of damage caused by these monkeys to properties		
N6000 – N10,000	1	0.6
N1000 – N5000	11	6.3
< N1000	61	34.9
Not-specified	102	58.3

Causes of mona monkey raids

The causes of raids to human facilities by mona monkeys were shown in Table 5. Most respondents (97.7 %) agreed that monkeys raided compounds that had fruit trees, and 90.85 % agreed that the raids were because the monkeys did not find food in their habitats. Many (87.4 %) were of the opinion that it was easier for monkeys to raid human's food than to forage in the wild. Others (76.0 %) agreed that trash bins within the compounds attracted monkeys, while 18.9% disagreed and 5.1% respondents were not specific if trash bins attracted monkeys or not. Most respondents (81.7%) agreed that the uncovered food in the kitchen attracted monkeys but 13.1% disagreed and 5.1% were indifferent about it. Also, 89.1% of the respondents agreed that unclosed kitchen doors made it easy for monkeys to raid, but 8.0% disagreed, while 2.9% were indifferent about it. It was also found that 60.6% of the respondents agreed that the human habitat have encroached into the monkey's habitat, while 31.5% disagreed and 8.0% were not specific about it.

Table 5: Causes of monkey raids on human facilities

Statement	SA		A		UD		D		SD	
	F	%	F	%	F	%	F	%	F	%
Monkeys raid a compound because of the fruit trees there	106	60.6	65	37.1	1	.6	3	1.7	0	0.0
Monkeys raid because they do not find food in their habitat	87	49.7	72	41.1	5	2.9	7	4.0	4	2.3
It is easier for monkeys to raid human foods than to forage in the wild	83	47.4	70	40.0	4	2.3	13	7.4	5	2.9
Trash bins within the compounds attract monkeys	63	36.0	70	40.0	9	5.1	22	12.6	11	6.3
The uncovered foods left in the kitchen attracts monkeys	98	56.0	45	25.7	9	5.1	17	9.7	6	3.4
Unclosed kitchen doors makes it easy for monkeys to raid	94	53.7	62	35.4	5	2.9	12	6.9	2	1.1
The human habitat have encroached into the monkeys habitat	43	24.6	63	36.0	14	8.0	43	24.6	12	6.9

SA= Strongly Agree, A= Agree, UD= Undecided, D= Disagree, SD= Strongly Disagree

Conservation of moan monkeys in urban areas

The perception of respondents towards conservation of mona monkeys in urban areas was shown in Table 6. Most respondents (72.0 %) did not agree (D and SD) that monkeys should be used as pets. Only 61.7 % of the respondents agreed (SA and A) that monkeys should be protected, but the monkeys should be relocated to zoos/game reserves as agreed by 81.1 % of them, since 74.8 % agreed that monkeys should not be allowed to encroach on human communities. Even though monkeys were regarded as nuisance in the environment by 48.6 % of respondents, 61.2 % disagreed that monkeys that raided a place should be killed.

Table 6: Peoples opinion towards conservation of monkeys in urban areas

Statement	SA		A		UD		D		SD	
	F	%	F	%	F	%	F	%	F	%
Monkeys should be allowed as pets	19	10.9	23	13.1	7	4.0	35	20.0	91	52.0
Monkeys should be protected	35	20.0	73	41.7	15	8.6	32	18.3	20	11.4
Monkeys that raid a place should be killed	36	20.6	16	9.1	16	9.1	64	36.6	43	24.6
Monkeys in this environment constitute a nuisance	25	14.3	60	34.3	13	7.4	52	29.7	25	14.3
Monkeys should not be allowed to encroach on human settlements	37	21.1	94	53.7	8	4.6	24	13.7	12	6.9
Humans should not encroach into wildlife habitats	22	12.6	63	36.0	13	7.4	53	30.3	24	13.7
Monkeys in the environment should be relocated to the game reserves and zoos	91	52.0	51	29.1	5	2.9	18	10.3	10	5.7
Government should solve the problems of monkeys raiding	41	23.4	81	46.3	10	5.7	34	19.4	9	5.1
Government should compensate people that are affected by monkey raids	28	16.0	66	37.7	21	12.0	45	25.7	15	8.6

SA= Strongly Agree, A= Agree, UD= Undecided, D= Disagree, SD= Strongly Disagree

Effects of respondents' socio-demography on their opinion on causes of raids and conservation of monkeys in urban areas

Only age of respondents was found to have statistically significant effect on their opinion to causes of HWC and conservation of monkeys in urban areas. Tables 6 and 7 showed respectively the descriptive statistics of age categories and one way analysis of variance of the effect of age on respondents' opinion on the causes of monkey raids on human facilities. The highest perception was from respondents in the age group less than 20 years (n =37, 14.51 $\pm$4.59), while the lowest was from respondents in the age group 30-39 years (n = 40, 11.20 $\pm$3.95). The differences (Table 7) in the perception of the respondents on the causes of monkey raids of human facilities was significant (F = 3.00, P < 0.05). The post-hoc showed that respondents who were less than 20, and those in the 20-29 age groups had better perception that were significant on the causes of monkey raids of human facilities than the respondents in the age group 30-39 years (P = 0.01) and (P = 0.014) respectively.

Table 6: Descriptive Statistics of age of respondents

Age (Years)	N	Mean	SD
Less than 20	37	14.51	4.592
20-29	64	13.38	3.869
30-39	40	11.20	3.950
40-49	17	12.82	5.015
50 years and above	17	12.65	5.545
Total	175	12.99	4.441

Table 7: One way analysis of variance on effect of age of respondents on their opinion on the causes of monkey raids of human facilities

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	225.998	4	56.500	3.00	0.020
Within Groups	3204.996	170	18.853		
Total	3430.994	174			

DISCUSSION

The highest number of mona monkeys recorded in University of Lagos could be due to presence of relic vegetation cover and their adaptation to other food resources (Olaleru and Egonmwan, 2012). Even though this population seems to be protected, being in an academic and elite environment, they were still being poached upon. There were forest edges that served as refuge for the few monkeys in Magodo and Agiliti areas. Respondents in Magodo preferred that the monkeys

were captured and translocated to the zoo or another forest. The least population recorded in Soluyi was because forests have been converted to residential areas and the monkeys were under serious persecution from residents who have used cages and guns to trap and kill them in the past (FO pers. Obs.). The very low populations in Soluyi, Magodo and Agiliti will be extirpated if no conservation measures are taken by the Lagos State government.

The species raided people's fruit trees, foodstuffs in the kitchens, and scavenged at waste bins. Raiding of fruit trees by mona monkeys have been recorded in Awka (Nwofoh, 2011) and Lagos (Olaleru, 2015). Primates were reported as the major crop raiders to farmers in Gashaka Gumti National Park (Eniang *et al*., 2011) and farmlands close to south-west of Mole National Park, Ghana (Wiafe, 2019). In developing countries, crop raiding is a common source of conflict between people and wildlife (Gemeda and Meles, 2018). This could be due to close spatial proximities humans are beginning to have with wildlife as wildlife habitats are being converted for agriculture and other uses, especially residence as found in the study locations (Musyoki, 2007). Onadeko *et al*., 2014 reported on encroachment of mona monkeys to human dwellings in the University of Lagos. Thus urbanization is a key driver in wildlife loss and conflict (McKinney, 2002).
Most respondents even after reporting raids indicated that they did not get any compensation from the government or any organisation for their losses. Respondents had difficulty in estimating the monetary equivalent of the damages caused by monkey raids. Compensation addresses conflict by reimbursing people for their losses. In HWC, compensation carries significant economic costs to humans, and was successful in areas where compensating bodies worked together with local non-governmental organisations (Ogra and Badola, 2008). Compensation conditions and procedures are usually difficult for farmers and villagers to access (Johnson *et al*., 2018), but it is the most common strategy used in mitigating losses due to HWC (Mukeka *et al*., 2019).

Nyamwamu *et al*. (2016) suggested different strategies that are used in different countries in Africa for the mitigation of HWC. Barriers have been successfully used in prevention of human-wildlife conflicts in some communities. For instance, in Magodo, there were past incidence of conflict between human and wildlife but this has been curtailed through the use of electric fence and burglary. This has reduced the HWC in this community. Hoare (1992) noted that electric fencing is considered as a more sophisticated solution. It is more durable, due to the reduced physical pressure from animals, deters a wide range of species that could invade properties and homes, and is aesthetically more appealing.

Since there were fewer cases of mona monkey kills from raiding escapades, it seemed residents have learnt to tolerate the monkeys. Majority of the respondents indicated that the trend of HWC in general over the years was increasing and that fencing, capture and translocation of monkeys from the communities were some of the mitigation measures proposed for more effectively dealing with the conflict. Residents preferred that the monkeys are kept in a conservation area like zoos or game reserves. This was captured in the report of Omotosho (2018) when residents in Soluyi community resorted to the print media to air their predicament over increasing raids by mona monkeys.

The younger age group seemed to understand the reasons why monkeys raided human facilities. This could probably due to fact that they were most affected by the raid incidence or were more observant in the activities of the monkeys in their environment.

CONCLUSION
This study established the presence of mona monkeys in all the studied urban communities, with populations that were very low. The monkeys lived in these completely urban areas where their natural food was scarce because they have adapted to foods consumed by humans. This interface caused human-monkey conflicts, a form of HWC. The mona monkey offers ecological services and is part of the food chain that benefits man. The current unsustainable habitat use that does not take cognizance of their ecological values could be replaced by the creation of an urban protected area by the Lagos State government. This would lead to the conservation of this species and other urban wildlife for ecological, educational, economic, and ecotourism purposes.

REFERENCES

Afolayan, T. A., Agbelusi, E. A. and Ogunjemite, B. G. (2004). Resources Conservation and Your Future. In: Egunjobi, O. A., Kayode, J., Faluyi, M. A.., Mukolu, A. and Afolabi, O. (eds). *Environmental degradation, reclamation, conservation and pollution control.* The Nigerian National Commission for UNESCO.

Carl, D. S. and Piran, C. L. W. (2015). Human-wildlife interactions in urban areas: a review of conflicts, 2 benefits and opportunities. *Wildlife Research*, **42**: 541 – 553.

Eniang, E.A., Ijeoma, J.M., Okekoyin, G. and Uwatt, A.E. (2011). Assement of Human-Wildlife Conflicts in Filinga Range of Gashaka Gumti National Park, Nigeria. *Production Agriculture and Technology*, **7**(1): 15-35.

Gemeda, D.O. and Meles, S.K. (2018). Impacts of Human-Wildlife Conflict in Developing Countries. *Journal of Applied Sciences and Environmental Management*, **22**(8): 1233-1238.

Grimm, N. B., Faeth, S. H., Golubiewski, N. E., Redman, C. L., Wu, J., Bai, X. and Briggs, J. M. (2008). Global change and the ecology of cities. *Science,* **319**: 756-760.

Hoare, R.E. (1992). The present and future use of fencing in the management of larger African mammals. *Environmental Conservation*, **19**(2): 160-164.

Johnson, M.F., Karanth, K.K., and Weinthal, E. (2018). Compensation as a Policy for Mitigating Human-wildlife Conflict around Four Protected Areas in Rajasthan, India. *Conservation and Society*, **16** (3): 305-319.

Matsuda Goodwin, R. (2007). Behavior and Ecology of the Mona Monkey in the Seasonally Dry Lama Forest, Republic of Benin, PhD Thesis, The City University of New York, New York.

McKinney, M. L. (2002). Urbanization, biodiversity, and conservation. *BioScience,* **52**: 883–890.

Messmer, T. A. (2000). The emergence of humanewildlife conflict management: turning challenges into opportunities. *International Biodeterioration and Biodegradation,* **45**: 97-102.

Miller, J. R. and Hobbs, R. J. (2002). Conservation where people live and work. *Conservation Biology,* **16**: 330–337.

Mukeka, J.M., Ogutu, J.O. Kanga, E., and Roskaft, E. (2019). Trends in compensation fro human-wildlife conflict losses in Kenya. *International Journal of Biodiversity and Conservation*, **2**(3): 90-113.

Musimbi, M. (2013). Factors Influencing Human-wildlife Conflict in Communities around the Park: A Case of Lake Nakuru National Park, Kenya. Masters' Thesis, University of Nairobi, Kenya.

Musyoki, C. M. (2007). *Human Wildlife Conflicts in Kenya*: *Crop raiding by Elephants & other Wildlife in Mahiga "B " Village of Nyeri District.* Phd Thesis, Kyoto University, Japan.

Nwufoh, E. I. (2011). Ecology and conservation of mona monkeys (*Cercopithecus mona*) in Awka capital city of Anambra State, Nigeria. Report submitted to Primate Conservation Inc. 12pp.

Nyamwamu, R.O., Ombati, J.M. and Mwangi, J.G. (2016). Effect of Human-Wildlife Conflict on Food Security among Small-Scale Maize Farmers in Laikipia County, Kenya. *International Journal of Science and Research*, **5**(6): 2563-2568.

Ogada, O. O., Woodroffe, R., Oguge, N. O. and Frank, L. G. (2003). Limiting depredation by African conflict perceptions and conservation prospects. *Environmental Conservation,* **24**(4): 338-343.

Ogra, M. and Badola, R. (2008). Compensating Human-Wildlife Conflict in Protected Area Communities: Ground-Level Perspectives from Uttarakhand, India. *Human Ecology*, **36**: 717-729.

Olaleru, F. (2015). Adaptation to foods by Mona monkeys (*Cercopithecus mona*) in a fragmented urban habitat in Lagos, Nigeria. In: Silva, B.O., Okunuga, S.A., Adams, L.A. (eds) *Proceedings for the Tenth University of Lagos Annual Research and Conference Fair*. University of Lagos Press, Lagos, pp 215-222.

Olaleru, F. and Egonmwan, R. I. (2012). Foods and Feeding habits of Mona monkeys in University of Lagos: A Tool for its *in situ* Conservation.In Alo, B., Falade, F. and Okunuga, W. (Editors). Proceedings of the University of Lagos Golden Jubilee Research and Conference Fair, **3**: 463-468.

Omotosho, O. (2018). Lagos community where monkeys, humans battle for supremacy. The New Telegraph of 11th April, 2018. https://www.newtelegraphng.com/lagos-community-where-monkeys-humans-battle-for-supremacy/

Onadeko, A. B., Olaleru, F. and Bada, O. (2014). The distribution of mona monkeys (*Cercopithecus mona*, Schreber, 1774) in the University of Lagos campus, Akoka, Lagos. *Ethiopian Journal of Biological Sciences*, **13**(1): 49-56.

Plumptre, A.J. Sterling, E.J. and Buckland, S.T. (2013). Primate census and survey techniques. In: Sterling, E.J., Bynum, N., Blair, M.E. (eds.).

Primate Ecology and Conservation: A Handbook of Techniques. Oxford University Press, Oxford, pp 10-26.

Pruetz, J.D. and Leasor, H.C. (2002). Survey of three primate species in forest fragments at La Suerte Biological Field Station, Costa Rica. *Neotropical Primates*, **10** (1): 4-8.

Soulsbury, C. D. and White, P. C. L. (2015). Human wildlife interactions in urban areas: a review of conflicts, benefits, and opportunities. *Wildlife Research,* **42**: 541-553.

Wiafe, E.D. (2019). Primate crop raiding situation on farmlands adjacent to south-west of Mole, National Park, Ghana. *Ghana Journal of Agricultural Science*, **54**(2): 58-67.