



ACCESSIBILITY TO ELEPHANTS AS TOURISM FLAGSHIP SPECIES: THE CASE OF MOLE NATIONAL PARK

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Abstract

Mole National Park (MNP), Ghana's largest protected area and most notable wildlife destination, permits tourists to view elephants and other wildlife species in their natural habitat. The elephant, a charismatic mega-herbivore and one of the 'Big Five' plays a flagship role in attracting tourists worldwide to protected areas. The paucity of information on habitat conditions, elephant numbers, trends and distribution has brought some uncertainty regarding elephants in tourism activities of the park. This study used both spatial data and structured questionnaire to examine the prevalence and distribution of elephants in MNP and the likelihood of tourists encountering elephants while visiting the park. A total of 120 respondents formed the basis of the study. Results revealed a drastic decline in elephant encounters in 2009 accompanied by a slight increase in 2011. The study showed that presence of the elephants has a significant effect on tourists' patronage of the park.

Key words: Mole National Park, wildlife, Tourism, African Elephant, Flagship Species

INTRODUCTION

Wildlife tourism is one of the most popular sectors in the tourism industry (Scheyvens, 1999; Wearing & Neil, 2009), which has the potential to generate revenues to improve infrastructure, boost economies, and create job growth, especially in developing countries. Many of these countries possess abundant natural assets (land/wildlife) which are ideally suited for these types of tourism. One major threat to successful development of wildlife tourism is the decline in wildlife populations resulting from human encroachment (urban development, subsistence and commercial agriculture) and other forms of interference, including poaching. Preventing or slowing this decline requires careful monitoring and management of wildlife. Since monitoring and preserving biodiversity of all species of a biome is a complex process, wildlife management professionals sometimes rely on a surrogate or proxy species method to encourage the protection of wildlife. One of these methods known as the flagship species concept relies on the availability of a high-profile species to promote tourist support for appropriate behaviours.

Africa is experiencing tremendous growth in wildlife tourism (World Bank, 2018). In West

Africa, Ghana is considered a desirable destination for wildlife tourism and the possibility for wildlife encounters draw more tourists to the country each year (Jachmann, et al., 2011). Ghana has several protected areas of which Mole National Park (MNP) is the largest and the best wildlife tourism destination in terms of animal stock and where tourists can view savannah elephants and other wildlife species up-close.

One of the country's major challenges in developing wildlife tourism is the diminishing animal populations due to human interference through activities such as poaching and an overall reduction in biodiversity (Jachmann, et al., 2011). Another problem responsible for the decline in animal species is human-wildlife conflict. Crop raiding appears to be the primary reason for human-wildlife conflict in the communities that border MNP (Aketen, 2015). For instance, earlier in 2018, a few young people from the nearby Laribanga community, slew a couple of elephants that had wandered out of the boundaries of the park and allegedly destroyed farms; consequently, wildlife officials removed the heads and ivory of the dead animals and allowed the meat to be divided up among the community (Duodu, 2018). Tracing the movements of megafauna (a major attraction



in MNP) as flagship species could provide insight into the development of wildlife tourism in Ghana.

The elephant is a ‘keystone’ species that plays a pivotal role in structuring both plant and animal communities and often dominates mammal biomass in its habitat (Stile, 2004). It is a species of considerable economic, ecological, cultural and aesthetic value in the world. The elephant as a flagship species has provided a focus for raising awareness and stimulating action and funding for broader conservation efforts across the world. Furthermore, it is one of the “Big Five” that tourists come to Africa specifically to see (Garai, 1994).

African elephants are assumed to have been widely distributed south of the Sahara prior to colonial times. They occur in 37 range states, although their continued presence in two of those countries (i.e. Senegal and Somalia) is uncertain and continental range for elephants covers approximately 3.1 million km² (Thouless, et al., 2016). There are two subspecies of African elephants, the savannah or bush elephant (*Loxodonta africana africana*) and the forest elephant (*Loxodonta africana cyclotis*). West Africa shelters the smallest and most fragmented *Loxodonta africana* populations on the African continent (Thouless, et al., 2016).

In Ghana, nine elephant populations exist; two of such populations occur within savanna habitats, five in forest habitats and the remaining two in the forest-savanna transition zone (Blanc et al., 2007). According to IUCN (2007) there were 789 ‘definite’ elephants in Ghana in 2006 with another 387 classified as ‘probables’. The largest number was in Mole (401) and Digya (357) National Parks (Blanc et al., 2007).

Elephants are one of the species that attract tourists to Ghana, especially to the MNP and thereby contribute to the development of the tourism in the country. They are locally very important and attract tourists to remote places that lack other attractions. Despite the conservational status, ecological, cultural, economic and aesthetic value of the elephants in MNP, there has been a renewed surge in poaching which threatens the survival and long-term viability of the species. Three censuses of the large mammals through

aerial surveys, carried out in 1993, 2002 and 2004 in the MNP revealed a drastic reduction in the numbers of elephants, i.e. 589, 380 and 259 respectively. The consequence of poaching is the inaccessibility to elephants by wildlife tourists. Currently, information on animal presence and distribution is vital for proper wildlife management, whether aimed at wildlife tourism, sustainable use, biodiversity conservation or research. This study therefore seeks to ascertain and document relevant information on the trend of encounters and distribution of elephants in the park in order to provide information for the promotion of elephant viewing activities to enhance tourist satisfaction and increase the revenue base of the wildlife division. Specifically, the objectives of the paper are to ascertain: the presence (trend), of elephants in the MNP, the distribution of these elephants within the park and the chances of tourists’ encountering any elephants during their visit to the park.

To attain the objectives of the paper the following research questions were posed: First, Are there still elephants in the MNP? Second, if there are, where in MNP can they be found? Lastly, what is the likelihood that a tourist visiting the park will encounter an elephant? The paper addresses the questions by focusing on the role of the savannah elephant as a flagship species for wildlife tourism development. The paper is presented in three sections, the first section provides an overview of flagship species concept and the theories that support this approach. The second outlines the study methodology and discusses the data collection, analyses and findings of the study. The final section summarizes the findings and provides suggestions for improving wildlife tourism opportunities in the MNP.

LITERATURE REVIEW

Flagship species refers to “popular, charismatic species that serve as symbols and rallying points to stimulate conservation awareness and action” (Samways, et al., 1995, p. 491). A more recent definition adds a marketing component to this concept to further explain the relationship between the species and the target audience (Verissimo, et al., 2011). This relationship is



characterized by a strong emotional attachment to the species leading to positive actions to protect it (Douglas & Winkel, 2014). Characteristics of successful flagship species applications in developing countries are: they are recognizable and liked by residents, charismatic with a connection to the community's culture, usually endangered, and easily associated with its habitat (Bowen-Jones & Entwistle, 2002; Caro, 2010). Examples of flagship species worldwide include elephants (Asian and African), tigers, giant pandas, and orangutans (Jepson & Barua, 2015). In Sub-Saharan Africa, the most recognized flagship species are elephants, rhinos (two species), gorillas, and chimps (Williams, Burgess, & Rahbek, 2000).

The flagship species concept has applications in many areas including raising awareness of endangered species, fundraising for conservation organizations, gaining public support for protection of the habitat of the species (Caro, 2010; Schlagloth, Santamaria, Golding, & Thomson, 2018; van der Meer, Badza, & Ndhlovu, 2016); promoting ecotourism venues, promotion of funded research, and influencing public policy on conservation issues (Barua, Root-Bernstein, Ladle, & Jepson, 2011; Xiang, et al., 2011). Despite the widespread appeal of flagship species as a conservation tool, questions remain about its usefulness.

Research on Flagship Species

Critics of flagship species have questioned it for several reasons including a lack of consensus about its definition, effectiveness in practice and possible conflict of the flagship approach with other ongoing conservation efforts. Flagship species research notes a lack of agreement on the definition of the concept (Favreau, et al., 2006; Verissismo, MacMillan, & Smith, 2011). One of the reasons for the confusion over the meaning is that there are multiple applications of the concept and criteria will differ depending on the context. For example, flagship species characteristics needed for success in ecotourism could be different for other applications. The application of this strategy becomes even more problematic when flagship species and other surrogate strategies (e.g. umbrella species) are used interchangeably (Caro

& O'Doherty, 1999). Much of the disagreement about the meaning of the term is due to confusion regarding whether the concept should address only ecological purposes or be used as a strategic tool to generate public support for conservation (Walpole & Leader-Williams, 2002). The effectiveness of flagship species as a strategy for conservation purposes has been questioned (Andelman & Fagan, 2000; Simberloff, 1998). Despite these criticisms, flagship remains a useful strategy for furthering conservation actions. The next part of the paper explains the theoretical foundations supporting the flagship species concept.

Theoretical Foundations Explaining the Role of Flagship Species

The flagship species idea is based on three theoretical approaches and these are the identifiable victims' effect (IVE), actor-network theory (ANT) and interactional theory (IT). The IVE (Jenni & Loewenstein, 1997; Kogut & Ritov, 2005) has been proposed as an underlying mechanism for flagship species research (Thomas-Walters & Raihani, 2017). The notion of IVE began with Schelling's (1968) analysis of the value people attach to saving the life of a familiar person versus someone unknown to them (i.e. based on statistics). Schelling discovered that people were more likely to render assistance to others they are already familiar with and this is known as the IVE. Subsequent research on IVE studied the emotional basis for altruistic behaviour and why people are more willing to assist a person (victim) they know rather than a generic statistical victim (for a comprehensive review of the progress of IVE research, see Lee & Feeley, 2017). Jenni & Loewenstein (1997) identified four potential reasons why people behave differently towards identifiable victims than statistical victims and these include: vividness-identifiable victims are often portrayed as helpless, innocent through almost instantaneous pictures and written/verbal reports that motivate viewers to take action; certainty/uncertainty-identifiable victims are likely to perish if no action is taken which may not occur with statistical victims; proportion of reference group means that a larger percentage of identifiable victims can be saved than for statistical



victims; and ex post and ex ante evaluation-after risk-producing events occur, decisions to rescue identifiable victims are imperative due to a real threat of death or serious injury from a preventable or addressable cause whereas a given action to save statistical victims is based on a statistical analysis of its effectiveness and is usually undertaken before risk-producing events ever happen and responsibility or blame is determined. Abundant research exists on the influence of the IVE on humans; however, only a handful of studies have investigated its impact when the victims are animals (Thomas-Walters & Raihani, 2017).

Jepson & Barua (2015) recently proposed their own version of flagship species action to explain why the flagship approach has proven effective in mobilizing conservation awareness and effort throughout the world. This approach relies upon ANT (Callon, 1986; Latour, 2005) to explain the relationships among the participants of an interactive network. ANT (actor-network theory, also known as the sociology of translation) posits that any environment comprises a network of unique actors. 'Actor' in this sense would include humans, flora, fauna, weather masses (e.g. hurricanes), electronic devices, pathogens or other microscopic entities (Whittle & Spicer, 2008). According to this theory, human actors in a network hold as much value as non-human actors and each possesses the capacity to act to further its interests.

Flagship species concept has also been linked to IT (interactional theory) as an explanation for charisma associated with animals (Skibins, Powell, & Hallo, 2013; Skibins, Powell, & Hallo, 2016). IT assumes human actions or behaviors are shaped by a combination of interactive factors: the person, social environment and physical environment (Altman & Rogoff, 1991; Archer & Wearing, 2003; Chan & Baum, 2007; Powell, Kellert & Ham, 2009). It follows then that IT would be useful in describing the influence of these factors (e.g. tourist, tour guides, conservation groups, protected areas such as national parks, etc.) on behaviour during wildlife encounters. When tourism is based on the flagship species concept, locals are more likely to be supportive of development efforts (Walpole & Leader-Williams,

2002).

MATERIALS AND METHODS

Study Area

Mole National Park (MNP) is one of six national parks in Ghana and one of three established in the Northern Savanna Zone. MNP is in the Guinea Savanna Zone in Northern Ghana with part of it extending into the Upper West Region (see Fig 1). The park covers an area of 4,577 km² and is surrounded by thirty-three (33) fringe communities with about forty thousand (40,000) residents (Abukari & Mwalyosi, 2018; Mole National Park, 2011). The topography is dominated by scarps which run north south through the park and reach up to 250 m in height. The dominant vegetation is open savannah woodland with grasses that can reach 3m during the rainy season. There are about 742 different plant species; faunal species in the park including 94 mammals, over 300 birds, 9 amphibians and 33 reptiles (IUCN/PACO, 2010). The large and most commonly seen mammals include elephants, buffalo, roan antelope, hartebeest, waterbuck, and kob; predatory animals include lion, leopard, spotted hyena, caracal, aardvark, genet and mongoose (IUCN/PACO, 2010). An aerial survey in 2007 by Bouche (2007) estimated 401 elephants in MNP with a density of 0.08 elephants/km² (as cited in Ashagbor and Danquah, 2017). Similarly, it has also been noted that the elephant population in MNP now possibly stands between 400 and 600 and are mostly concentrated in the southern half of the park (Bradt Travel Guides, 2014).

Data Collection

Data were collected from both primary and secondary sources. The population sampled was restricted to tourists visiting the park during the time of the study. The views and expectations of tourists on wildlife tourism, with respect to the savannah elephants were obtained through simple random sampling technique and were used as primary data. Each day, visitors who checked in at the park reception were labelled and five were randomly selected using the lottery method (Fravetter & Forzano, 2011). They were then interviewed on their personal expectations at the



park. There were days where no visitors were recorded. A structured 13-item questionnaire was randomly administered to 120 tourists who visited MNP during the time of the research data collection which lasted three months. Parallel to the collection of the primary data, the secondary data were extracted by field researchers from

field patrol logbooks made available by the wildlife field officers (MNP, 2007-2011). The information included the trends of elephants encountered during patrols, carcasses of dead animals discovered, poaching camps, poachers arrested and other illegal activities etc.

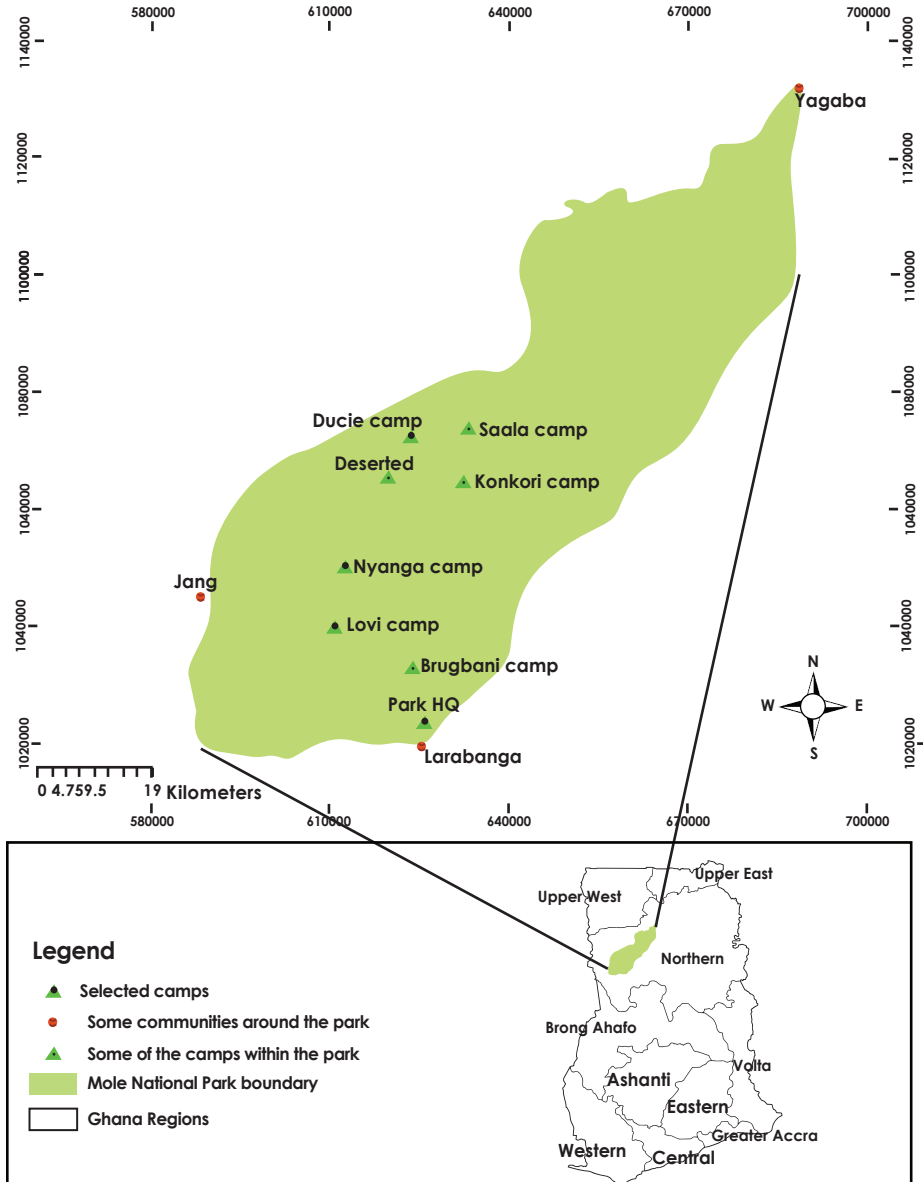


Figure 1: Map of Ghana showing Mole National Park



DATA ANALYSIS

Quantitative and qualitative data were collected via questionnaire administration. Data extracted from the MNP 2007-2011 logbook were coded and analysed using the statistical package for social sciences (SPSS) and the Management of Information System Technology (MIST) software. The results are presented in the form of maps, tables and graphs.

Characteristics of Respondents

The analysis of the primary data of the 120 respondents showed that 55 % were male and 45% were female (Fig 2). The age ranges of the respondents appear in Figure 3. Sixty-three (52%) of the respondents learned of MNP through the internet, 36 (30%) respondents had their information about MNP from travel guides and 21 (18%) had the information through conversation with friends and relatives. Also,

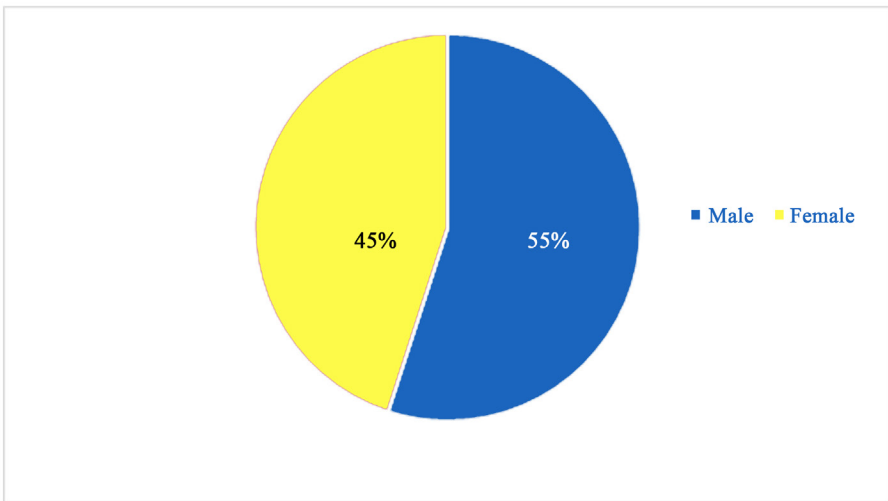


Figure 2: Gender of Respondents

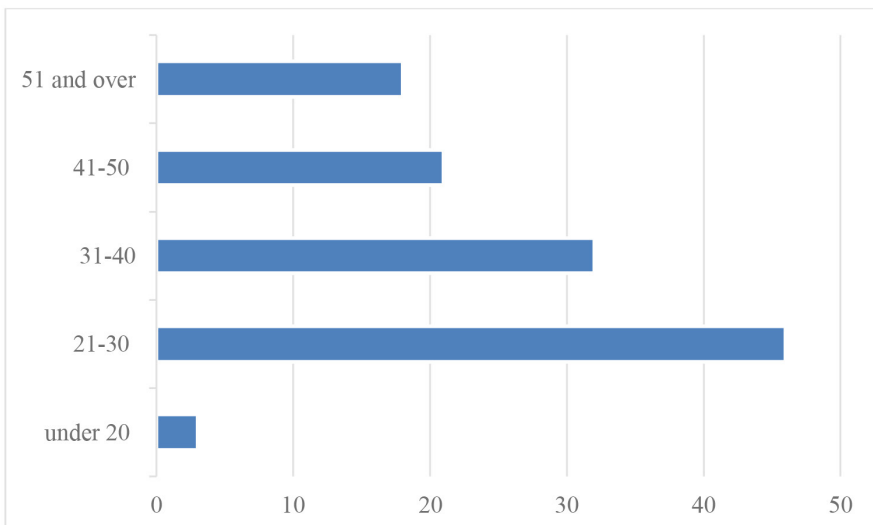


Figure 3: Age Range of Respondents

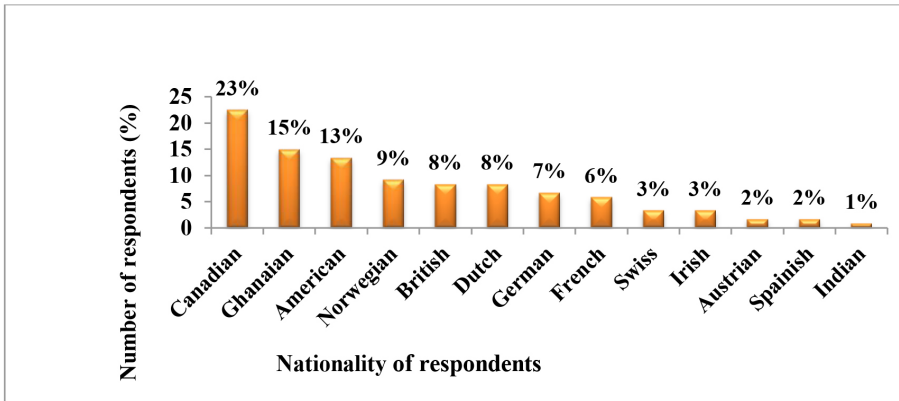


Figure 4. Nationality of respondents in November 2012 (MNP 2007-2011)

from Figure 4, out of the 120 tourists interviewed, only 18 (15%) were Ghanaians whilst the remaining 102 (85%) were foreign nationals. Most of the Ghanaian tourists were students from second cycle institutions who took advantage of a festival known as 'fire festival' at Larabanga, a community four kilometres away to experience the park. The international tourists were dominated by Canadians (27) representing 22%, followed by Americans (16) 13% and the rest of the countries each recording less than 10% (majority of the tourists visiting MNP at the time of the study were Europeans). Sixty-eight percent of respondents (81) were motivated by the presence of elephants to visit MNP whilst 32% (38) were interested in other recreational activities such as bird watching, hiking, cultural tourism events. This observation is consistent with Garai's (1994) assertion that the elephant is one of the 'Big Five' that tourists come to Africa specifically to see. It is however, unfortunate that only 53 (47%) of respondents had the opportunity of seeing the elephants while the remaining 63 (53%) were unable to see the elephants on their visit to MNP. Tour guides however, gave tourists the erroneous impression that it was either due to vegetation cover and/or mating that had kept the elephants away from sight.

Trend of Elephants Encountered between the Period 2007-2011 at MNP

From Figure 5, the increase in the number of elephants encountered between 2007 and 2008

(from 1,472 encounters representing a catch per effort of 0.289 to 1,498 encounters in 2008 representing a catch per effort of 0.354) may be due to past management practices, including: Community-based Wildlife Management (CWM), partnerships between local communities and agencies responsible for managing wildlife in protected areas; creation of Community Resource Management Areas (CREMA), a planning/management tool designed to help local communities to benefit economically from managing wildlife; livelihood support programmes; community-based tourism programmes; and arts and crafts schemes) and reduced poaching activities. It may also be due to reproduction, as predicted by Calef (1988), a maximum annual elephant population growth of 7% and up to 16.5% per annum under exceptional circumstances. On the contrary, the radical drop in encounter rate from 2008-2009 (from 1,498 to 1,171 representing a catch per effort of 0.354 and 0.071 respectively) may be due to severe and aggressive uncontrolled demand for commercial ivory. This confirms the reports of the law enforcement unit of the park management: three poachers were arrested within 2008 and 2010 for shooting elephants with a 0.303 rifle (MNP, 2007-2011).

Reports reveal that MNP wildlife poachers were mostly Ghanaian farmers from surrounding villages and they killed most of the elephants outside the park, especially in the western corridor from December 2011 to February 2012, five elephants were killed at Kayoro along the corridors



of the park. The poaching in 2008–2009 led to little improvement in the number of elephant encounters until in 2011 when there appeared to be a slight recovery and a boost in the number of encounters (i.e. a total of 1462 encounters representing a catch per effort of 0.058). This improvement may be attributed either to reproduction or immigration of elephants from other reserves and increased anti-poaching efforts (Government of Ghana, Forestry

Commission-Wildlife Division, 2005 and 2012). The average monthly encounter also indicated that July had the highest encounter followed by August, February, March, January, June, September, April, May, December, October and November in that order. This observation suggests that wildlife tourists have a better chance of elephant viewing experience in MNP in the month of July.

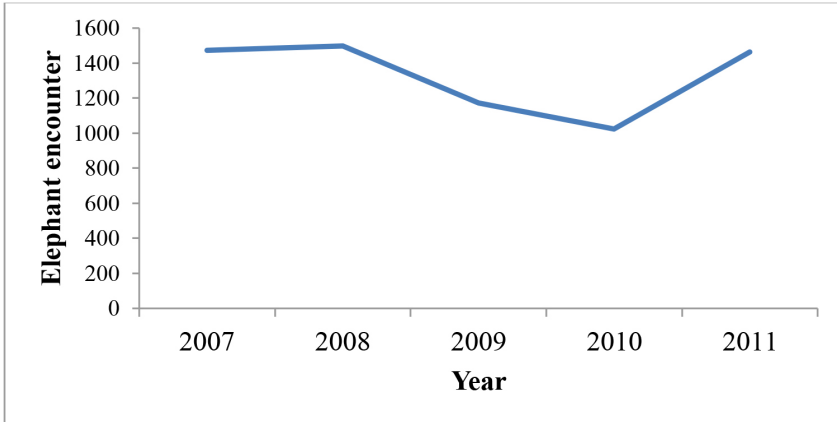


Figure 5: Trend of Elephant Encounters (2007-2011) at MNP (MNP, 2007-2011)

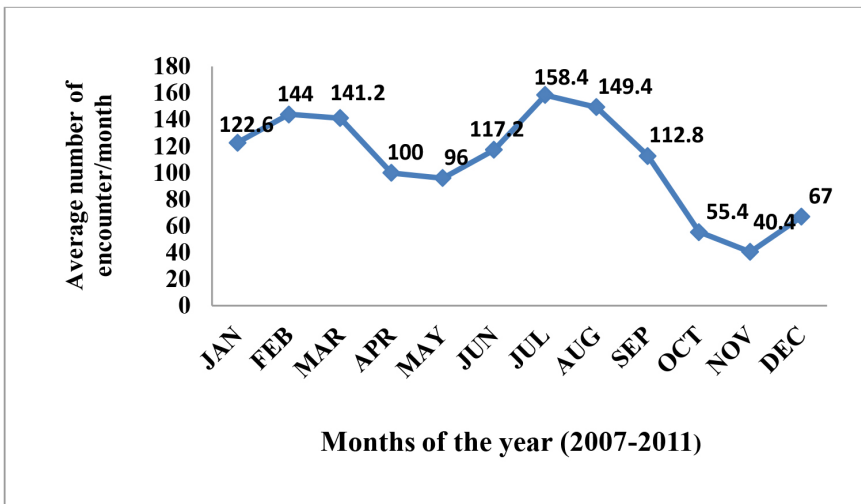


Figure 6: Average Number of Elephants Encountered Per Month (2007-2011) at MNP (MNP, 2007-2011)

Spatial Distribution of the Savannah Elephant in MNP from 2007-2011

In 2007, the savannah elephants in MNP were always within the park headquarters range.

Most of them were close to the headquarters buildings and the game viewing roads, with very few moving around Lovi and Nyanga camps and the rest towards Ducie range in the Wa East

District. The round dotted spots on the map show the distribution of the savannah elephants (Figs. 7-11). The distribution of the savannah elephants in the park in 2008 was still around the headquarters

range. The few spotted within the year were mostly close to the headquarters buildings and the game viewing roads. However, very few of them were spotted away from the game viewing roads (Fig. 8).



Figure 7: Spatial Distribution of the Savannah Elephant in 2007 (MNP 2007-2011)



Figure 8: Spatial Distribution of the Savannah Elephant in 2008 (MNP 2007-2011)



In 2009, the elephants were still distributed within the headquarters range and mostly close to the game viewing roads. The number that was spotted around Lovi and Nyanga camps was relatively insignificant (Fig. 9). The distribution of the elephants in the park in 2010 had recorded a slight variation in the pattern from the past three years (2007-2009). Even though there were a lot of elephants scattered around the headquarters, there seemed to be a movement in the distribution pattern towards Ducie range (Fig. 10).

In the year 2011, the pattern of the distribution deviated from that of 2007, and the rest of the years showing a clear shift in the pattern of distribution of the elephants from the headquarters range towards Ducie range in Wa East District in the Upper West Region. Almost

50% of the elephants encountered in 2011 were outside the headquarters range and far away from the headquarters game viewing roads (Fig. 9). These elephants were spotted in the Ducie range close to the game viewing roads with very few numbers spotted far from the loops, thereby making them easily accessible by tourists from 2007 to 2009. During the years, 2010 and 2011, most (50% and 70% respectively) of the herds were scattered around Lovi camp and Nyanga camps and Ducie range in the Wa East District in the Upper West Region. Whilst it is difficult to attribute changes in distribution to specific variables, or combinations of variables, reports (see MNP, 2007-2001) on the park showed that most of the illegal ivory hunting occurred in the headquarters range, causing the possible migration.

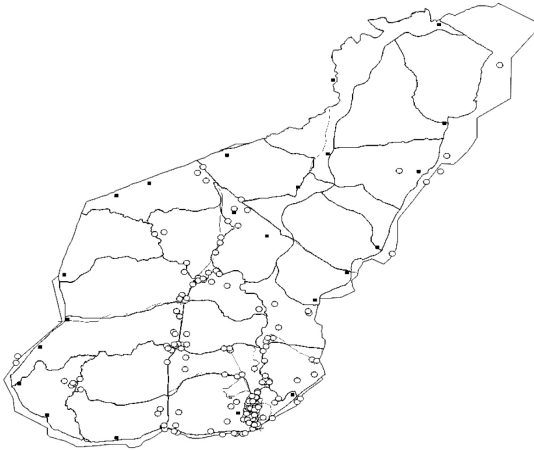


Figure 9. Spatial Distribution of the Savannah Elephant in 2010 (MNP 2007-2011)

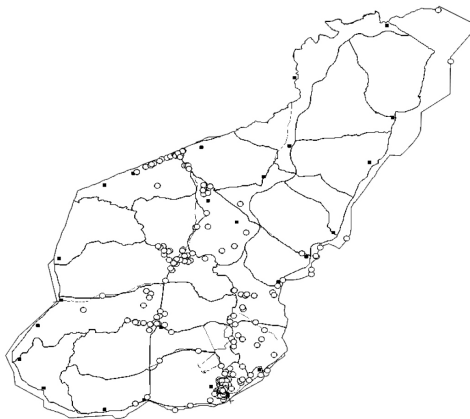


Figure 10: Spatial Distribution of the Savannah Elephant in 2009 (MNP 2011-2011)



Figure 11: Spatial Distribution of the Savannah Elephant in 2011 (MNP 2007-2011)

Additionally, frequent elephant-crop-raiding incidents on fringe communities of the headquarters range, coupled with a control method known as blasting (the use of gun powder, filled in fabricated metallic cases and detonated by fire to frighten the elephants from farms) was introduced to scare the animals into the interior of the park. Elephants are described as mega herbivorous mammals with voracious appetites. Consequently, they would cause possible damage to the vegetation as their numbers increase beyond a certain point (Carruthers et al., 2008). This observation is consistent with Sukumar's (2003) assertion that reductions in forest cover will lead to a decrease in palatable browse species, which will potentially attract elephants to more nutritious grain stores.

Nevertheless, this pattern of herd distribution involving movement from headquarters range to Ducie range contradicts Carnaby's (2006) report that elephants do not suffer from water loss due to lack of sweat glands and will seldom travel far from water sites. This finding is inconsistent, because Mole River located at the headquarters is the only permanent water body in the park and thus should have prevented the elephants from moving to the Ducie range. Evidence suggests that wildlife tourism with respect to the elephants in MNP can also be conducted around Lovi camp and Nyanga camps and in Ducie range and not only in the headquarters range. This assertion is

supported by their spatial distribution and clear migratory pattern to the Ducie range.

Wildlife tourists with special interest in elephants should either be camped at the Lovi or Nyanga camps or Ducie range to enhance their chances of elephant encounter. It suggests that effective management intervention is required in the Ducie range to prevent the incidence of human elephant conflict as the great appetites, diet, size, strength, intelligence and mobility of the elephants make them formidable competitors for many of the scarce resources that are also valued by humans. According to Hoare (2001) and Hoare (1999), an increase in the number of elephants also means an exacerbation of problems. Essentially, inadequate management of human elephant conflict is frequently a pre-cursor to further decline in the numbers and distribution of elephants.

CONCLUSION

The study showed an increase in the trend of elephants' encounters in 2007, followed by a sharp decline in the number of encounters in 2008, which continued progressively to 2010. It has been demonstrated that past management practices (identified earlier in the paper) and reduced poaching activities accounted for the initial increase while the sudden fall was as a result of poaching for ivory by local hunters. The year 2011 indicated a slight increase in the number of



encounters attributable to improved anti-poaching efforts and reproduction as well as immigration from other reserves. Furthermore, there was a considerable difference in herd distribution between the year 2007 and 2011. While most of the herds were concentrated within the headquarters range and close to game viewing roads of the park from 2007 to 2009, during 2010 and 2011 most of the herds were clustered around Lovi and Nyanga camps, and within Ducie range in the Wa East District. Tourists' expectation with regards to elephant watching in MNP is high (68%). However, less than half (47%) of the respondents had the opportunity of seeing an elephant due to lack of accurate knowledge in their temporal and spatial distribution pattern by the park officials.

Based on the findings, the study makes the following recommendations: Firstly, improving the capacity of the wildlife officials to monitor the elephants within the park. Monitoring equipment such as closed caption television could be introduced to monitor suspicious and poaching activities and track perpetrators. Secondly, there should be an implementation of additional livelihood schemes by park management particularly in conjunction with the West Gonja and Wa East District Assemblies. These schemes should focus on bee keeping, mushroom farming, grasscutter rearing, tourism-related activities (guided access to the park and operation of homestay facilities) as well as the development of craft villages to enable locals to benefit from the tourism of the park. This would also help reduce poaching activities. Thirdly, a percentage of tourism proceeds should be earmarked for development projects in the park's fringe communities. MNP officials should make community members aware that these funds were generated from tourist visitations. Such information will help community members see the link between MNP and their own welfare.

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REFERENCES

- Abukari, H., & Mwalyosi, R. (2018). Comparing pressures on national parks in Ghana and Tanzania: The case of Mole and Tarangire national parks. *Global Ecology and Conservation*, 15, 1-13.
- Aketen, Z. (2015). *Human-wildlife conflict in Ghana: The case of elephants at the Mole National Park* (Master's thesis). Available from https://brage.bibsys.no/xmlui/bitstream/handle/11250/2358846/10560_FULLTEXT.pdf?sequence=1&isAllowed=y.
- Altman, I., & Rogoff, B. (1987). World views in psychology: Trait, interactional, orgasmic, and transactional perspectives. In D. Stokols & I. Altman (Eds.), *Handbook of Environmental Psychology* (pp. 7-40). New York: John Wiley & Sons.
- Andelman, S., & Faga, W. (2000). Umbrellas and flagships: Efficient conservation surrogates or expensive mistakes? *Proceedings of the National Academy of the Sciences of the United States*, 97, 5954-5959.
- Archer, D. & Wearing, S. (2003). Self, space, and interpretive experience: The interactionism of environmental interpretation. *Journal of Interpretation Research*, 8(1), 7-23.
- Ashiagbor, G., & Danquah, E. (2017). Seasonal habitat use by Elephants (*Loxodonta africana*) in the Mole National Park of Ghana. *Ecology and evolution*, 7(11), 3784-3795. doi.org/10.1002/3ce3.2962.
- Barua, M., Root-Bernstein, M., Ladle, R., & Jepson, P. (2011). Defining flagship uses is critical for flagship selection: A critique of the IUCN climate change flagship fleet. *Ambio*, 40(4), 431-435.



- Blanc, J., Barnes R., Craig H., Thouless C., Douglas-Hamilton I., and Hart J. (2007). *African Elephant Status Report 2007: an update from the African Elephant Database*. Occasional Paper Series of the IUCN Species Survival Commission, No. 33. IUCN/SSC African Elephant Specialist Group, IUCN, Gland, Switzerland.
- Bouche, P. (2007). Northern Ghana elephant survey. *Pachyderm*, 42:58-69.
- Bowen-Jones, E., & Entwistle, A. (2002). Identifying appropriate flagship species: The importance of culture and local contexts. *Orynx*, 2, 189-195.
- Brandt Travel Guides (2014). Mole National Park-A review from our expert author. Available from <http://www.brandtguides.com/destinations/Africa/Ghana/mole-national-park/html>.
- Calef, G. (1988). Maximum rate of increase in the African Elephant. *African Journal of Ecology* 26(4), 323-327.
- Callon, M. (1986). The sociology of an actor network: The case of the electronic vehicle in mapping the dynamics of science and technology. In M. Callon, J. Law and A. Rip (Eds.), *Mapping the dynamics of science and technology: Sociology of science in the real world* (pp. 19-34). London: Macmillan.
- Carnaby, T. (2006). *Beat around the bush: Mammals*. 1st ed., Johannesburg: Jucana Media.
- Caro, T. (2010). *Conservation by proxy: Indicator, umbrella, keystone, flagship and other surrogate species* (pp. 145-261). Washington, D.C.: Island Press.
- Carruthers, J., Boshoff, A., Slotow, R., Biggs, H.C., Avery, G. and Matthews, W. (2008). The Elephant in Southern Africa: History and Distribution. In R.J. Scholes & K.G. Mennell, (Eds.), *Elephant management: A scientific assessment for south Africa* (pp. 23-83). Johannesburg: Wits University Press.
- Chan, J., & Baum, T. (2007). Ecotourists' perception of ecotourism experience in lower Kinabatangan, Sabah, Malaysia. *Journal of Sustainable Tourism*, 15(5), 574-590.
- Douglas, L., & Winkel, G. (2014). The flipside of the flagship. *Biodiversity and Conservation*, 4, 979-997.
- Duodu, S. (2018). 2 Mole park elephants killed by Laribanga youth. *Graphic Online*. Available from <http://www.graphic.com.gh/news/2-mole-park-elephants-killed-by-Laribanga-youth.html>.
- Environmental Investigation Agency (1994). *Living proof. African elephants; the success of the CITES appendix I ban*. London: EIA.
- Favreau, J., Drew, A., Hess, G., Rubino, M., Koch, F., & Exhcehlbach, K. (2006). Recommendations for assessing the effectiveness of surrogate species approaches. *Biodiversity and Conservation*, 15, 3949-3969.
- Garai, M. (1994, October). Distribution of elephants in South Africa. Update. Translocated Elephant Information Centre (TEIC) Newsletter 3, November 1994.
- Government of Ghana, Forestry Commission (Wildlife Division). (2012). Endangered species in the western wildlife corridor need protection. Available from <http://www.ghana.gov.gh/index.php/news/features/1443g>.



- Government of Ghana, Forestry Commission (Wildlife Division). (2005). 2nd Draft Mole National Park Management Plan Valid to 31 December 2010, Accra, Ghana.
- Gravetter, F., & Forzano, L. (2011). *Research Methods for the Behavior Sciences*. Belmont, CA: Cengage Learning.
- Hoare, R. (1999). Determinants of human–elephant conflict in a land-use mosaic. *Journal of Applied Ecology*, 36, 689–700.
- Hoare, R. (2001). A decision support system for managing human–elephant conflict situations in Africa. IUCN/SSC African Elephant Specialist Group, Nairobi, Kenya. Available from <http://www.hwctf.org>.
- IUCN (2007). The World Conservation Union. 2006 IUCN Red List of Threatened Species. Available from <http://www.iucnredlist.org>.
- IUCN/PACO (2010). Parks and reserves of Ghana: Management effectiveness assessment of protected areas. Ouagadougou, Burkina Faso, IUCN/PACO.
- Jachmann, H., Blanc, J., Nateg, C., Balangtaa, C., Debrah, E., Damma, F. Kip, A. (2011). Protected area performance and tourism in Ghana. *South African Journal of Wildlife Research*, 41(1), 95–109.
- Jenni, K., & Loewenstein, G. (1997). Explaining the “Identifiable Victim Effect” *Journal of Risk and Uncertainty*, 14, 235–257.
- Jepson, P., & Barua, M. (2015). A theory of flagship species action. *Conservation and Society*, 13(1), 199–215.
- Kogut, T., & Ritov, I. (2005). The ‘identified victim’ effect: An identified group or just a single individual? *Journal of Behavioural Decision Making*, 18, 157–167.
- Latour, B. (2005). *Re-assembling the social: An introduction to actor-network theory*. Oxford, UK: Oxford University.
- Lee, S., & Feeley, T. (2017). The identifiable victim effect: A meta-analytic review. *Social Influences*, 11(3), 199–215.
- Mole National Park (2007–2011). Fauna distribution and movement. Unpublished report. Damongo; Wildlife Division.
- Mole National Park (2011). *Mole National Park Management Plan 2011–2016*. Wildlife Division of the Forestry Commission of Ghana, Accra, Ghana.
- Powell, R., Kellert, S., & Ham, S. (2009). Interactional theory and the sustainable nature-based tourism experience. *Society & Natural Resources*, 22(8), 761–776.
- Samways, M., Stork, N., Cracraft, J., Eeley, H., Forster, M., Lund, G., & Hilton-Taylor, C. (1995). Scales, planning and approaches to inventorying and monitoring. In V. Heywood & R. Watson (Eds.), *Global biodiversity assessment* (pp. 475–518), Cambridge, UK: Cambridge University.
- Schelling, T. (1968). The life you save may be your own. In S. Chase (ed.), *Problem in public expenditure analysis* (pp. 127–166). Washington, DC: The Brookings Institute.
- Scheyvens, R. (1999). Ecotourism and the empowerment of local communities. *Tourism Management*, 20, 245–249.
- Skibins, J., Powell, R., & Hallo, J. (2016). Lucky 13: Conservation implications of broadening “Big 5: flagship species recognition in East Africa. *Journal of Sustainable Tourism*, 24(7), 1024–1040.



- Slagloth, R., Santamaria, F., Golding, B., & Thomson, H. (2018). Why is it important to use flagship species in community education? The koala as a case study. *Animal Studies Journal*, 7(1), 127-148.
- Stile, D. (2004). The ivory trade and elephant conservation. *Environmental Conservation* 31(4), 309-321.
- Sukumar, R. (2003). *The living elephants: evolutionary ecology, behaviour, and conservation*. New York: Oxford University Press.
- Thomas-Walters, L., & Raihani, N. (2017). Supporting conservation: The roles of flagship species and identifiable victims. *Conservation Letters*, 4, 1-8.
- Thouless, C., Dublin, H., Blanc, J., Skinner, D., Daniel, T., Taylor, R., & Bouché, P. (2016). *African Elephant Status Report 2016: an update from the African Elephant Database*. Occasional Paper Series of the IUCN Species Survival Commission, No. 60 IUCN. Available from <https://portals.iucn.org/library/node/46878>
- van der Meer, E., Badza, M., & Ndhlovu, A. (2016). Large carnivores as tourism flagship species for the Zimbabwe component of the Kavango Zambezi Transfrontier Conservation Area. *African Journal of Wildlife Research*, 46(2), 121-135.
- Verissimo, D., MacMillan, D., & Smith, R. (2011). Toward a systematic approach for identifying conservation flagships. *Conservation Letters*, 4, 1-8.
- Walpole, M., & Leader-Williams, N. (2002). Tourism and flagship species in conservation. *Biodiversity and Conservation*, 11(3), 543-547.
- Wearing, S., & Neil, J. (2009). *Ecotourism: Impacts, potentials and possibilities*. Oxford, UK: Butterworth-Heinemann.
- Whittle, A., & Spicer, A. (2008). Is actor network theory critique? *Organization Studies*, 29(4), 611-629.
- Williams, P., Burgess, N., & Rahbeck, C. (2000). Flagship species, ecological complementarity and conserving the diversity of mammals and birds in sub-Saharan Africa. *Animal Conservation*, 3, 249-260.
- World Bank (2018). Supporting sustainable livelihoods through wildlife tourism. Washington, D.C. Retrieved from <https://openknowledge.worldbank.org/handle/10986/29417>.
- Xiang, Z., Yang, Y., Mei, Y., Yang, J., Niao, M., & Li, M. (2011). Does flagship species tourism benefit conservation? A case study of the golden snub-nosed monkey in Shennongjia National Nature Reserve. *Chinese Science Bulletin*, 56(24), 2553-2558.