

Full Length Research Paper

Socioeconomic determinants of Cameroon's Mefou Wildlife Sanctuary visitors' willingness to pay for seeing animals in the wild

**ACHEY Baudelair NKENFACK DJIKE^{1,2*}, Serge SILATSA NANDA^{2,5},
Marcien KUETE FOGANG^{1,2}, Mohamed Mounir MFONDEN POUMIE²,
Abdoulaye NCHANKOU NJOYA³, Marceline EKOM ANGO⁴ and Lucie Félicité TEMGOUA²**

¹Institute of Agricultural Research for Development (IRAD), P. O. Box 44 Dschang, Cameroon.

²Department of Forestry, Faculty of Agronomy and Agricultural Sciences, University of Dschang, P. O. Box. 222, Dschang, Cameroon.

³Faculty of Science, Department of Biology and Plant Organisms, University of Douala, P. O. Box. 24157, Douala, Cameroon.

⁴Ministry of Forestry and Wildlife, P. O. Box 34430, Yaoundé, Cameroon.

⁵Sustainable Tropical Actions (STA), Yaoundé - Cameroon

Received 10 June, 2023; Accepted 24 July, 2023

Protected areas (PAs) in Cameroon witness chronic underfunding, with most operating with only around 10% of the necessary funds. This study aimed to explore socioeconomic factors affecting Mefou Wildlife Sanctuary (MWS) visitors' willingness to pay (WTP) for wildlife species observation in their natural habitat. The study was based on semi-structured questionnaires conducted with 637 respondents and the contingent valuation method was used to estimate visitors' WTP. The findings reveal an average WTP of \$US 170 for foreign visitors and \$US 81 for national visitors to see animals in the wild. Income level and education significantly influenced WTP, with higher-income individuals and those with higher education demonstrating a greater willingness to pay. By recognizing the factors that drive visitor spending behavior, policymakers and park managers can implement targeted marketing campaigns and allocate resources effectively. This study emphasizes the importance of providing diverse and high-quality wildlife experiences to enhance visitor satisfaction and encourage repeat visitation and make the country an attractive world destination for eco-tourists. The country can, therefore, contribute to sustainably fund conservation while supporting local development and boosting its tourism industry.

Key words: Eco-tourism, iconic wildlife species, Mefou Wildlife Sanctuary (MWS), natural habitat, protected areas, visitors, socioeconomic determinants, willingness to pay.

INTRODUCTION

Wildlife conservation and the sustainable management of protected areas (PAs) have gained significant attention globally due to the increasing threats posed by habitat loss, climate change, and poaching (Wilcox et al.,

2019). PAs cover 15.3% of the world's terrestrial surface (Spenceley et al., 2017) and are recognized as one of the most effective ways to conserve natural ecosystems and related services (Molina et al., 2019). They also hold the

potential for revenue generation through proper investments (Ralph, 2021). Consequently, understanding the socioeconomic factors that influence visitors' willingness to financially contribute to conservation has become crucial for effective conservation strategies (Huang et al., 2021).

Mefou Wildlife Sanctuary (MWS) is an *ex-situ* conservation site, located in the vicinity of the capital city Yaoundé. According to Doumenge et al. (2021), it is among the most visited eco-touristic site in Cameroon far ahead of national parks where emblematic species are present in their natural habitat. The MWS thus serves as an outstanding case study for investigating the complex relationship between socioeconomic determinants of visitors and their willingness to pay (WTP) for observing animals in their natural environment in Cameroonian National parks. Those PAs not only harbours more diverse wildlife species but also provide numerous ecosystem services and has the potential to contribute to local economies through nature-based tourism (Ivanic et al., 2020; Scholte, 2022).

However, like many PAs in the Congo Basin, they face the challenge of inadequate funding for conservation (CBD, 2019). The current funding available for PAs in Cameroon, which predominantly relies on external sources (Pyhälä et al, 2016; Doumenge et al., 2015), falls significantly short of the required amount, rendering the current conservation model unsustainable with continuous decline of biodiversity (Brugière et al., 2016; Scholte et al., 2018). Hence, exploring sustainable funding options, such as visitor contributions, becomes paramount.

Tourism has been identified as a sector that can significantly contribute to the funding of PA networks globally (CBD, 2019; Leung et al., 2018). When managed sustainably, tourism can play a pivotal role in effective PA management, as demonstrated by successful cases in various African parks. For instance, profitable tourism activities have covered a significant portion of the operational costs in Zakouma National Park, Chad (APN, 2018), while revenue generated from gorilla visits in Volcanoes National Park, Rwanda, has supported up to 90% of park activities (APN, 2021). Furthermore, such tourism activities create employment opportunities for surrounding communities, highlighting the potential socio-economic benefits (Visit Rwanda, 2021).

Despite Cameroon's immense touristic potential, it remains largely underdeveloped and undervalued (Frida-Tolonen, 2014). Several factors, including unprofessional guide staff, inadequate infrastructure, poor marketing, and security concerns, contribute to the underutilization of tourism opportunities (Kimbu, 2011). Notably, visitors have shown a greater interest in *ex-situ*

conservation sites like MWS, the Mvog-beti zoo in Yaoundé, and the Limbe botanic garden (Nlom et al., 2013). However, it is crucial to assess their willingness to visit and experience natural ecosystems within Cameroon's national parks, along with the necessary conditions and the amount they are willing to spend for such visits. This data can inform conservation stakeholders in creating suitable conditions to attract more tourists and generate funds for the sustainable management of PAs.

Previous studies have emphasized the significance of socioeconomic factors in shaping visitors' attitudes, preferences, and behaviors towards wildlife conservation and ecotourism (Hvenegaard, 2017; Nyaupane et al., 2018). WTP approach has been widely employed to evaluate visitors' monetary valuation of wildlife experiences and assess the potential for generating financial resources to support protected area management (Ginsburgh, 2017).

This study aims to contribute to the existing body of knowledge by specifically investigating the socioeconomic determinants that influence Mefou Wildlife Sanctuary visitors' WTP for observing animals in Cameroon national parks. By exploring the key factors that shape visitors' preferences and behaviours, the findings of this research can inform the development of targeted strategies for sustainable funding, effective conservation management, and enhanced visitor experiences within protected areas (Reimer et al., 2020; Biggs et al., 2020). Specifically, this study is focusing on (i) identifying tourists visiting the MWS, (ii) evaluating their willingness to see wildlife species in their natural national park system and (iii) determining the amount of money they would be willing to spend for such experience.

MATERIALS AND METHODS

Study area

MWS was specifically chosen as the study area for this research due to its significance and characteristics. It serves as an *ex-situ* conservation site and has garnered substantial attention, with over 6,800 visitors in 2013, making it the third most frequented eco-touristic destination in Cameroon, particularly popular among foreign visitors (Doumenge et al., 2021). The sanctuary spans a total area of approximately 800 ha, yet only around 60 ha have been effectively utilized and developed including the administrative block, a souvenir shop, the education and visitors' office, a restaurant, a kitchen, dormitories, and animal enclosures. Geographically, it is situated in the Centre region of Cameroon, within the Mefou-and-Afamba Division, Mfou Subdivision, encompassing the villages of Ekali I, Ekali II, and Metet (Figure 1) at coordinates 3°57'09"N and 11°55'20"E.

*Corresponding author. E-mail: nkenfack.achey@yahoo.com. Tel: +237676283701.

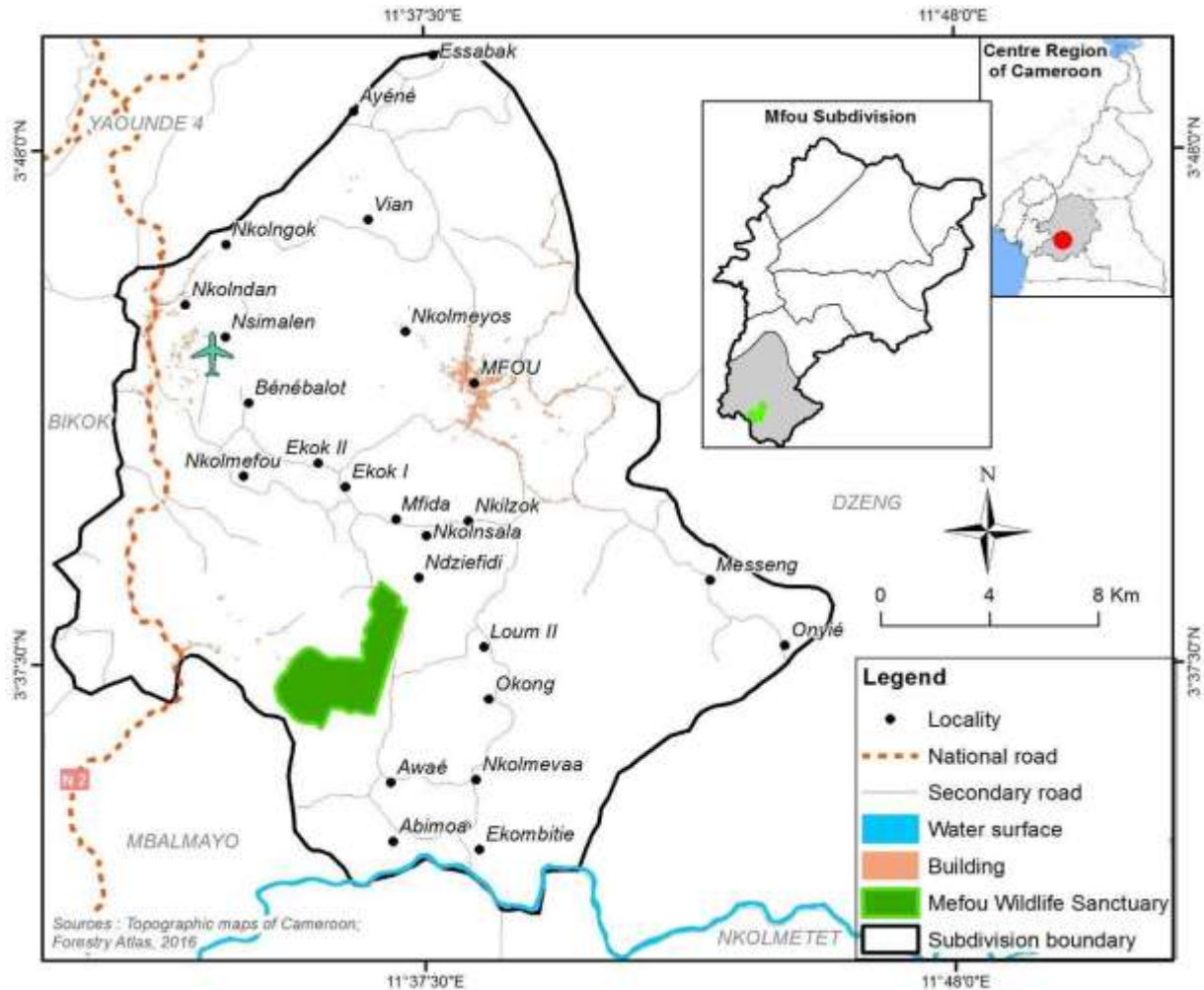


Figure 1. Location of the Mefou Wildlife Sanctuary (MWS).
Source: Authors

The management of MWS is entrusted to the Non-Government Organisation (NGO) Ape Action Africa, which primarily focuses on primate conservation within the sanctuary, an aspect that captivates a significant number of visitors, along with the diverse flora species found in the forest.

In the wild, poachers kill adult apes for meat and the young ones are sold as pets or abandoned when government officials arrest these criminals, these orphans are sent to the MWS for proper treatment before being released in natural ecosystems when they can survive on their own. The sanctuary is home to a remarkable primate population, comprising 287 apes, all of which are orphans, including 125 chimpanzees, 24 gorillas, and 138 monkeys representing 10 different species.

The animals are housed in enclosures where the surface area is relatively flat, each covering an area of approximately 2 ha, featuring natural vegetation such as large trees and various flora species that closely resemble the natural habitat of apes (Maurice et al., 2020). To ensure the well-being of the animals, each enclosure is overseen by a team of at least three animal caregivers who diligently attend to their feeding, hydration, and overall health, while also monitoring their behavior for any signs of illness or negative changes. The valuable insights and observations provided by these caregivers contribute to the

feedback and reporting process to the Ministry of Forestry and Wildlife, facilitating effective management practices within the sanctuary.

The MWS is conveniently situated at a mere 45 km from Yaoundé, the capital city of Cameroon. To enter the sanctuary, visitors are required to pay an entrance fee. For adult foreigners, the fee is set at FCFA 10,000 (US\$ 16), while resident foreigners are charged FCFA 7,500 (US\$ 12). Foreign children are admitted at FCFA 4,000 (US\$ 7), whereas adult Cameroonians pay FCFA 2,000 (US\$ 6), and national children are granted entry for FCFA 500 (US\$ 0.8). These fee structures serve as an indication that visitors possess a genuine interest and passion for wildlife conservation prior to their arrival at the sanctuary.

Within the MWS, the apes are housed in enclosures that span up to two hectares, featuring the presence of natural, towering trees. This arrangement provides visitors with a vivid glimpse into the habitat and lifestyle of these apes in their natural surroundings (Wamba et al., 2022). The sanctuary offers two visitation sessions per day, the morning session taking place from 9 to 11 am, and the afternoon session occurring between 2 and 4 pm.

Upon entering the sanctuary, visitors are welcomed by the tour operators and visitation rules are given to them (no feeding, all cameras without flash light, no form of communication with the

Table 1. Sociological characteristics of the respondents.

Sociological feature	Category	Number of respondents	Percentage
Gender	Male	392	61.6
	Female	245	38.4
Origin	National	189	29.6
	Foreigner	448	70.4
Age	10-20	25	4.4
	20-30	112	17.6
	30-40	331	52
	40-50	102	16
	50-60	67	10.4
Education	Primary	15	2.3
	Secondary	203	31.9
	University	419	65.8

Source: Authors

animals). Visitors are advised to ease themselves in the comfortable toilet since the tour is more than an hour to avoid interruptions. To ensure an optimal experience, each session is limited to a maximum of 20 individuals. After the tour, visitors are presented the shop where souvenirs (pictures, post cards, t-shirts, pens and pencils) and local handcrafts could be bought to support the NGO and the local community. Visitors also support by buying food and drinks from the restaurant.

Data collection

In order to assess the willingness of visitors to pay visits to protected areas (PAs), a socio-economic survey was conducted among individuals visiting the MWS. The survey took place from March to April 2022 and involved a representative sample of 637 respondents from the 257 visitor groups that toured the MWS during that period. Following their visit, the respondents undertook a semi-structured questionnaire to gather information following the contingent valuation approach (Ginsburgh, 2017).

The questionnaire encompassed various aspects, including the visitors' satisfaction with the visit, their awareness of where they could observe the animals in their natural habitat, the expenses incurred during their trip, their willingness to witness the animals in the wild, the amount they were willing to spend for such an excursion, and whether they would be willing to pay additional fees to observe iconic species such as elephants, leopards, and crocodiles. Furthermore, general inquiries were made concerning the respondents' demographic characteristics, such as their gender, age, monthly income, place of origin, how they learned about the MWS, the frequency of their visits to PAs, and their level of education. Table 1 provides an overview of the respondents' sociological characteristics, encompassing their gender, age, nationality, and education level.

Data analysis

The data collected during the survey were entered into Microsoft Excel for encoding and subsequently analyzed using the commercially available software, R (version 4.1.1, R Core

Team 2022). To assess the respondents' willingness to observe wildlife in its natural habitat, the Chi-Square test of independence in conjunction with the Fisher test was employed as suggested by McHugh (2013). This statistical analysis aimed to determine whether any associations existed between the respondents' willingness (yes or no) and their sociological characteristics, including origin, gender, education level, age, and monthly income.

The contingent valuation method was used to estimate visitors' willingness to pay for observing wildlife in its natural habitat (Ginsburgh, 2017). Then, the analysis of variance (ANOVA) and mean separation through Tukey's HSD (Honestly Significant Difference) were utilized. These statistical techniques facilitated the comparison of results across each of the sociological features mentioned earlier, namely origin, gender, education level, age, and monthly income.

RESULTS AND DISCUSSION

Identification of eco-tourist at the MWS

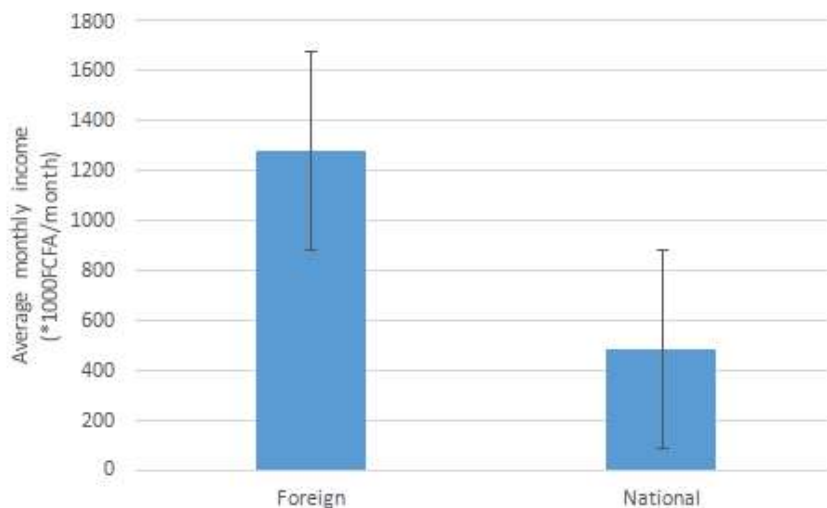
Number of visitors of the MWS

Among the 637 respondents who visited the MWS throughout the study period, 331 were Cameroonian, accounting for 52% of the total visitors, while 306 were foreign visitors from various countries, representing 48% of the total visitors (Table 2). Notably, the category with the highest number of visitors was foreign men, whereas the category with the lowest number was foreign children. This disparity in visitor demographics can be attributed to the fact that many foreign visitors were accompanied by male drivers or guides who were nationals. Additionally, the relatively high number of national children visiting the sanctuary was influenced by the participation of four schools, which brought a total of

Table 2. Origin of visitors at the Mefou Wildlife Sanctuary.

Gender	National visitors		Foreign visitors	
Male	130	20.4	145	22.7
Female	66	10.4	122	19.2
Children	135	21.2	39	6.1
Total	331	52	306	48

Source: Authors.

**Figure 2.** Average monthly income of visitors.

Source: Authors.

104 students for an educational excursion.

The total amount collected in entrance fees during the two-month period amounted to FCFA 3.2 million (US\$ 5,195), with foreign visitors contributing FCFA 2.7 million (US\$ 4,383) and national visitors contributing FCFA 0.5 million (US\$ 812). Additionally, the Mefou Wildlife Sanctuary's eco shop generated sales of approximately FCFA 1,800,000 (US\$ 2,922) within the same timeframe.

Nationality and monthly income of the visitors

Out of the 637 interviewed visitors, there was a diverse range of nationalities represented. Most visitors at the MWS were Cameroonian, with 188 individuals accounting for 29.6% of the total number of visitors. Foreign visitors came from various regions including Europe, America, Asia, and other African countries. Among the foreign visitors, France had the highest number with 127 visitors (20%), followed by England with 56 visitors (8.8%). Germany and the USA each had 40 visitors (6.4%), while Belgium and Spain had 30 visitors each (4.8%). Israel and Italy had 20 visitors each (3.2%),

and several countries including Algeria, Senegal, India, Poland, and Switzerland had 10 visitors each (1.6%). Additionally, Canada, Rwanda, Mexico, Portugal, Sweden, and Slovenia each had five visitors (0.8%). Figure 2 showcases the average monthly income of visitors based on their origin (national or foreigner).

The average monthly income of national visitors was approximately FCFA 500,000 (US\$ 812), ranging from a minimum of FCFA 100,000 to a maximum of FCFA 900,000. For foreign visitors, the average monthly income was about FCFA 1.3 million (US\$ 2,110), with a minimum of approximately FCFA 900,000 (US\$ 1,475) and a maximum of FCFA 1.7 million (US\$ 2,786).

Proportion of resident and the city of visitors

The findings indicate that the vast majority (90%) of the visitors to the MWS were residents of Cameroon, visiting the sanctuary primarily for leisure purposes. Only 10% (63 individuals) of the visitors were classified as tourists who have traveled from other countries specifically to explore Cameroon. In this context, "resident" refers to

Table 3. Provenance city of visitors.

City	Number of visitors	Percentage
Yaoundé	576	90.4
Douala	21	3.3
Mbalmayo	20	3.1
Metet	10	1.6
Kribi	5	0.8
Lobeke	5	0.8
Total	637	100

Source: Authors.

individuals who were in Cameroon for reasons other than tourism, such as work, assignments, or health-related matters.

As seen in Table 3, the survey also revealed that approximately 90.4% (576 individuals) of the visitors originated from a single city, namely Yaoundé, the capital city. This city is located just 45 km away from the MWS, making it easily accessible. This high proportion can be attributed to the presence of various embassies and the headquarters of international NGOs in Yaoundé. Moreover, since much of the information about the MWS spreads through word of mouth, it is understandable that most of visitors come from the same city.

Among the other cities surveyed, Douala, the second-largest city with nearly 4 million inhabitants, accounted for only 21 visitors, despite being located 337 km away from the MWS. Similarly, only 20 visitors came from Mbalmayo, a significant city with over 120,000 residents situated just 25 km from the sanctuary. Additionally, only 10 visitors originated from Metet, a village within the MWS. Interestingly, no visitors were recorded from Ebolowa, the capital city of the South region, which has a population of over 250,000 and is located just 135 km from the MWS.

Source of information about the sanctuary

According to the survey results, a significant proportion of visitors (86%) obtained information about the MWS through personal connections, primarily from relatives. This "word-of-mouth" method involved friends, family members, neighbors, or colleagues who had previously visited the MWS. On the other hand, only a minority (14%) relied on online advertisements, including various platforms such as websites and social media channels like Facebook, Instagram, or TikTok.

Furthermore, the survey revealed that a majority of visitors (91% or 579 individuals) expressed satisfaction with their experience at the MWS. Many visitors were particularly impressed by the presence of great apes and monkeys, while others expressed delight in witnessing a tropical forest with its majestic large trees and hanging lianas. However, a small proportion of visitors (9%)

reported some level of dissatisfaction. Although they enjoyed observing the apes, they had expected to encounter a wider variety of wildlife species during their visit.

The willing to see wildlife species in their natural habitat

The level of visitor interest in wildlife was initially assessed by analyzing their frequency of visits to the MWS. Figure 3 presents the distribution of the number of times visitors have come to the sanctuary. It is evident that the majority of visitors, accounting for 81.6% (520 individuals), have visited the MWS only once. This could be attributed to the perception that there are limited species to observe during a single visit, leading to the belief that subsequent visits may not offer anything significantly new or different. However, a small percentage of visitors, 9.6%, have visited twice, 7.2% have visited thrice, while 0.8% have visited for the fifth time and another 0.8% have visited for the tenth time.

The visitors' inclination to observe wildlife in their natural habitat is presented in Table 4, categorized by their sociological characteristics. Table 4 reveals that an overwhelming majority of visitors, 98%, express a willingness to see animals in the wild based on their sociological features. In terms of gender, all female visitors express this desire, while only 15 males were not interested. Regarding their origin, almost all foreign visitors were willing, with the exception of five who remains skeptical, along with ten national visitors. Considering the age groups, ten visitors from the 20-30 age group and five visitors from the 40-50 age group did not wish to witness wildlife species in the wild. Conversely, all visitors from the 10-20, 30-40, and 50-60 age groups expressed a desire to observe these wildlife species in their natural habitat.

Furthermore, all visitors with low monthly incomes (less than FCFA 0.5 million) and high incomes (above FCFA 1.5 million) were willing to see wildlife in their natural habitat. However, 15 visitors with monthly incomes ranging from FCFA 0.5-1 million did not share

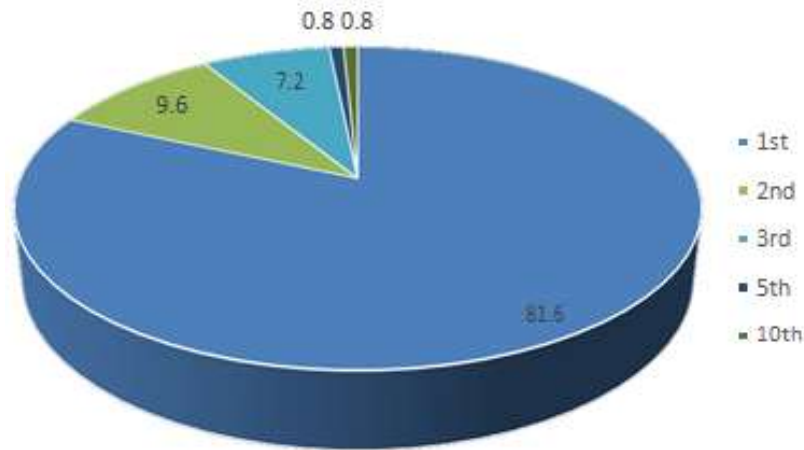


Figure 3. Frequency of visitors.
Source: Authors.

Table 4. Comparing willingness to see with sociological characteristics of visitors.

Sociological feature	Category	No	Yes	Chi-square (X ² value)	test (X ²) P-value	Fisher test (p-value)	Conclusion																																																									
Gender	Female	0	245	1.85	0.17	0.29	Independent variables																																																									
	Male	15	377					Origin	Foreigner	5	443	2.02	0.15	0.21	Independent variables	National	10	179	Age	10-20	0	25	6.82	0.14	0.10	Independent variables	20-30	10	102	30-40	0	331	40-50	5	97	50-60	0	67	Education	Primary	0	15	1.82	0.40	0.29	Independent variables	Secondary	14	189	Tertiary	6	418	Average monthly Income (*FCFA1000)	40-500	0	133	3.48	0.32	0.44	Independent variables	500-1000	7	153	1000-1500
Origin	Foreigner	5	443	2.02	0.15	0.21	Independent variables																																																									
	National	10	179					Age	10-20	0	25	6.82	0.14	0.10	Independent variables	20-30	10	102		30-40	0	331					40-50	5	97	50-60	0	67	Education	Primary	0	15	1.82	0.40		0.29	Independent variables	Secondary					14	189	Tertiary	6	418	Average monthly Income (*FCFA1000)		40-500	0	133					3.48	0.32	0.44	Independent variables
Age	10-20	0	25	6.82	0.14	0.10	Independent variables																																																									
	20-30	10	102																																																													
	30-40	0	331																																																													
	40-50	5	97																																																													
	50-60	0	67																																																													
Education	Primary	0	15	1.82	0.40	0.29	Independent variables																																																									
	Secondary	14	189																																																													
	Tertiary	6	418																																																													
Average monthly Income (*FCFA1000)	40-500	0	133	3.48	0.32	0.44	Independent variables																																																									
	500-1000	7	153																																																													
	1000-1500	8	158																																																													
	1500+	0	178																																																													

No= Number of No (unwilling to see); Yes=Number of Yes (willing to see).
Source: Authors.

the same willingness.

Foreign visitors primarily originated from France (20% of visitors), followed by England (8.8%) and Germany (6.4%). This can be attributed to historical colonial ties and the existing cooperation between Cameroon and these countries, which encourage citizens to visit

Cameroon (Mabeu and Pongou, 2023). This result differs from the tourist profile in Uganda, where about three-quarters of tourists come from other African countries, with Kenya accounting for more than 50%, followed by Tanzania and Rwanda (MTWA, 2014). This can be attributed to the strong wildlife tourism culture in East

African countries and the ease and affordability of travel between these nations (Nibigira, 2019). Therefore, the Cameroonian government and private sector should invest in tourist infrastructure such as roads, hotels, and restaurants in and around protected areas, making them more appealing destinations for international tourists. Additionally, increased advertising of Cameroon's significant tourist potential is crucial.

Effective advertising campaigns should target European, American, Asian, and African nationals, utilizing both conventional (in embassies, for example) and social media platforms.

The willingness to see wildlife species in their natural habitat

The majority of visitors (91%) reported being satisfied with their tour, although 81.6% were visiting for the first time. Visitors were satisfied because they had the opportunity to see various groups of animals. However, the overall touristic potential is not sufficient to encourage many visitors to repeat the trip. According to Doumenge et al. (2021), having a single "flagship" touristic product is not enough. Tourism thrives on the diversity of offerings at each site, within each country, and across sub-regions. Therefore, to attract tourists on a long-term basis, multiple touristic products or destinations should be associated. A touristic circuit could be created, linking several protected areas so that tourists can have multiple experiences during their visit.

The results indicate that 78% of visitors were unaware of any protected areas where they could observe wildlife species in Cameroon. This lack of knowledge is due to the poor advertisement of eco-touristic sites, with limited efforts made by protected area managers in Cameroon. For example, very few protected areas have active social media pages on platforms such as YouTube, Facebook, Instagram, and TikTok. This limited promotion contributes to the low number of tourists; these areas receive annually, often less than 100. This finding contrasts with the work of Peet and Saayman (2016) conducted at Kruger National Park in South Africa. SAN parks, responsible for the advertisement of all national parks in South Africa, actively promoted Kruger National Park on various online platforms such as Facebook and Instagram, regularly showcasing its touristic potential. This contributed to attracting over one million tourists in 2016. Therefore, each protected area in Cameroon should establish an active online presence to showcase the species that can be observed by tourists if they visit.

The analysis of visitor willingness to observe wildlife species reveals that 98% of visitors expressed a desire to observe these species in their natural habitat. This finding aligns with the research by Hvenegaard (2017), which found that the vast majority of society expressed

their willingness to visit and support the Miquelon Lake provincial park in Canada. This passion for wildlife species among eco-tourists drives their desire to witness firsthand how these species interact with each other, other species, and their environment, despite the wild nature and associated risks. Additionally, many visitors understand the importance of their contribution to the protected area's income and its impact on the conservation of wildlife species. However, despite their willingness, only a few have had the opportunity to visit protected areas in Cameroon due to limited access and a lack of information about where to observe these species. Moreover, there are few success stories from those who have visited protected areas in Cameroon. For instance, Germain, a French visitor to the MWS, mentioned that he visited Campo-Ma'an National Park but did not have the opportunity to see any animals.

The amount visitors are willing to pay to see wildlife species in their natural habitat

The findings as presented in Table 5 reveal that foreign visitors are willing to pay an average of FCFA 105,000, while nationals are willing to pay only FCFA 50,000 to see apes in their natural habitat. Rachele, an American visitor to the MWS, stated, "I am ready to pay US\$1,500 if I am sure to see these great apes because that's what people pay in Rwanda." Similarly, Brighton, a British visitor, expressed, "Money is not a problem; I am willing to pay any amount if the park can assure comfort in terms of lodging, logistics, and the opportunity to see iconic species in the wild." This aligns with the economic model of entrance fees in Volcano National Park in Rwanda, where foreign tourists pay higher fees compared to regional and national tourists. In response to the international tourism crisis caused by the Covid-19 pandemic, temporary entrance fees for foreign international tourists were set at \$US 1,500 (FCFA 750,000), \$US 500 (FCFA 250,000) for residents and tourists from the African Union, and \$US 200 (FCFA 100,000) for national tourists and the East African community (Visit Rwanda, 2021). This is due to the higher financial capacity of foreigners in many African countries (IMF 2022), and their passion and eagerness to see these wildlife species in their natural habitat, as they are not commonly found in their home countries (Karam, 2020). Therefore, if they are guaranteed the opportunity to see these species, they are willing to pay.

The results also indicate that older visitors (50-60 years) are willing to spend more than younger visitors (Table 5). This can be attributed to older visitors having more leisure time and a greater understanding of the importance of these wildlife species. This finding aligns with Zyndron et al. (2021) research, which found that older individuals, particularly those over 60, expressed the highest willingness to bear financial costs for the

Table 5. The amount visitors are willing to pay to see apes in the wild.

Sociological feature	Category	N	Mean ± sd (*FCFA 1000)	ANOVA		Sig.	Conclusion
				F	Pr(>F) Value		
Gender	Female	245	72.2±51.5	4.45	0.04	0.05	Significantly different
	Male	392	99.1±77.5				
Origin	Foreigner	448	105.7±67.4	19.49	0.2×10 ⁻⁴	0.001	Significantly different
	National	189	49.3±49.4				
Age	10-20	25	19.0±8.9 ^a	2.16	0.07	0.01	Significantly different
	20-30	112	73.9±53.8 ^b				
	30-40	331	93.1±66.0 ^b				
	40-50	102	91.9±84.1 ^b				
	50-60	67	116.53±86 ^b				
Education	Primary	15	30.0±17.3 ^a	1.09	0.33	0.01	Significantly different
	Secondary	203	90.7±81.8 ^b				
	Tertiary	419	90.3±64.3 ^b				
AMI (*FCFA 1000)	40-500	133	42.9±41.4 ^a	9.30	0.1×10 ⁻⁴	0.001	Significantly different
	500-1000	160	70.3±58.2 ^{a,b}				
	1000-1500	166	111.5±77.1 ^{b,c}				
	1500+	178	118.6±67.9 ^c				

n=Number of respondents; sd=standard deviation; ANOVA=analysis of variance; sig.= level of significance; AMI=average monthly income; Values followed by different letters (a, b, and c) in the same column and line block are significantly different at $p \leq 0.05$.

Source: Authors.

benefit of Wielkopolski National Park in Poland. Respondents in the 41-60 age group also declared large amounts. Conversely, the age group least likely to incur expenses for the park comprised individuals aged 26-40. Therefore, when developing touristic infrastructure in and around protected areas, logistics, transportation, and catering should consider the needs of older people, as they are more likely to visit if the conditions are suitable for them. Additionally, men are willing to pay significantly more than women, as men tend to spend more time and money on leisure activities (Bruce, 2013). Hence, advertisement efforts can focus on men to encourage them to bring their families.

Furthermore, visitors with a primary level of education are willing to pay significantly less than those with secondary and tertiary levels. This finding aligns with Sintayehu and Raminder (2020) study, which indicated that WTP was positively influenced by education, suggesting that advanced education would enhance visitors' WTP. Witt (2019) also emphasized that education and awareness have a positive impact on personal growth and can increase knowledge, ultimately leading to more positive environmental attitudes.

The results also reveal that wealthier visitors are willing to pay more than those with lower incomes. This can be explained by the fact that wealthier individuals have greater financial means to support their touristic

activities. This finding aligns with that of Zyndron et al. (2021) research, which showed a clear correlation between wealth and the willingness to financially support Wielkopolski National Park in Poland. The group with the lowest monthly income per family member was less likely to incur financial costs compared to those with higher incomes. The findings of Ghazanfar et al. (2021) also support the notion that visitation is income dependent, and the demand for ecotourism is highly influenced by household income.

This study underscores the untapped potential of eco-tourism in Cameroon by capitalizing on the diverse wildlife, creating appealing touristic circuits, improving advertising efforts, and addressing visitor preferences. Cameroon and other Congo basin countries can position themselves as attractive destinations for eco-tourists from around the world. Through responsible and sustainable tourism practices to value protected areas, the countries can simultaneously contribute to funding biodiversity conservation, support local communities, and enhance its tourism industry for the long term.

Conclusion

This study sheds light on various socioeconomic factors

affecting Mefou Wildlife Sanctuary (MWS) visitors' willingness to pay (WTP) for wildlife species observation in national parks. It reveals the current state of visitor demographics, satisfaction levels, willingness to see wildlife species in their natural habitat, and the amount of money visitors are willing to pay for this unique experience. The findings emphasize the need for strategic planning and promotion of eco-touristic sites in Cameroon. While visitor satisfaction levels are high, the study highlights the importance of diversifying the touristic offerings and creating touristic circuits that connect multiple protected areas. This approach would allow visitors to have a range of experiences and encourage repeat visits, ultimately boosting tourism revenue and conservation efforts. One crucial aspect that requires attention is the limited awareness among visitors regarding the existence of other protected areas where wildlife species can be observed in the wild. It is essential for park managers to enhance their advertising efforts, particularly through active engagement on various social media platforms, as demonstrated by successful examples from other countries. The study also highlights the significant role of visitor WTP, particularly among foreign visitors. The findings suggest that foreign tourists are willing to pay higher fees, reflecting their enthusiasm to witness iconic wildlife species in their natural habitats. This can generate increased revenue that can be reinvested in conservation efforts and improving the overall tourist experience. Furthermore, the study reveals that age, gender, education level, and income play a role in visitor preferences and WTP. Understanding these factors can guide the development of tailored marketing strategies and touristic infrastructure to cater to different visitor segments, such as targeting older individuals, emphasizing educational outreach, and considering the needs and preferences of wealthier tourists to become attractive destination for eco-tourists from around the world. By effectively showcasing the rich biodiversity and unique wildlife experiences, Cameroon can attract both international and domestic tourists, contributing to the country's tourism industry and conservation goals while supporting local development.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

ACKNOWLEDGEMENTS

The authors appreciate all the workers of the Mefou Wildlife Sanctuary especially Mr Douplex Tchoudjo, Mrs Jo Gewada and Mr Charle Amougou all from the Education Department, for their availability and willingness to share their precious knowledge on the basics and formalities of visits at the MWS. They also

appreciates all visitors who took their precious time to answer questions on the willingness to visit natural PAs in Cameroon.

REFERENCES

- African Parks Network (APN) (2018). Parc National de Zakouma. Rapport Tourism Saison 2017-2018. Direction Du Parc National de Zakouma, African Parks. Tchad.
- African Parks Network (APN) (2021). African Parks 2021 Annual Report. <https://www.africanparks.org/annual-report-2021>
- Biggs CR, Lauren AY, Derek GB, Christina B, Angelina MD, Zhenxin H, Spencer RK (2020). Does Functional Redundancy Affect Ecological Stability and Resilience? A Review and Meta-analysis. *Ecosphere* 11(7). <https://doi.org/10.1002/ecs2.3184>.
- Bruce T (2013). Reflections on Communication and Sport. *Communication and Sport* 1 (1–2):125-37.
- Brugière D, Chardonnet B, Scholte P (2016). Large-Scale Extinction of Large Carnivors (Lion, Panthera Leo, Cheeter, Acinonyx Jubatus and Wild Dog, Lycaon Pictus) in Protected Areas of West and Central Africa. *Tropical Conservation Science* 8(2):513-527.
- Convention of Biological Diversity (CBD) (2019). Avant-Projet Du Cadre Mondial de La Biodiversité Pour l'après-2020. Secrétariat de La CDB, Canada. Montréal.
- Doumenge C, Palla F, Madzous GL, Itsoua (2021). Aires Protégées d'Afrique Centrale- Etat 2020. Edited by Gervais-Ludovic Itsoua Madzous and Donald Jomha Djossi. Vol. 400. Yaounde-Cameroon.
- Doumenge C, Palla F, Scholte P, Hiol Hiol F, Larzillière A (2015). Aires Protégées d'Afrique Centrale-Etat 2015. Edited by Doumenge Charles, Palla Florence, and Scholte Paul. Vol. 256. KINSHASA-RDC.
- Frida-Tolonen FF (2014). Promotion and Development of Tourism in Cameroon, pp. 1-44.
- Ghazanfar AA, Janani K, Karpal S (2021). Understanding the intention to revisit a destination by expanding the theory of planned behaviour (TPB). *Spanish Journal of Marketing – ESIC* 25(2).
- Ginsburgh V (2017). Contingent Valuation, Willingness to Pay, and Willingness to Accept. In *Economic Ideas You Should Forget*, pp. 65-66. Cham: Springer International Publishing. https://doi.org/10.1007/978-3-319-47458-8_26.
- Huang Q, Fang W, Hongbo Y, Marc V, Melissa S (2021). Will the COVID-19 Outbreak Be a Turning Point for China's Wildlife Protection: New Developments and Challenges of Wildlife Conservation in China. *Biological Conservation* 254 (February): 108937. <https://doi.org/10.1016/j.biocon.2020.108937>.
- Hvenegaard G (2017). Visitors' Perceived Impacts of Interpretation on Knowledge, Attitudes, and Behavioral Intentions at Miquelon Lake Provincial Park, Alberta, Canada. *Tourism and Hospitality Research* 17(1):79-90.
- International Monetary Fund (IMF) (2022). Living on the edge. <https://www.imf.org/en/News/Articles/2022/10/13/pr22349-sub-saharan-africa-living-on-the-edge>.
- Ivanic K, Stolton S, Arango CF, Dudley N (2020). Protected Areas Benefits Assessment Tool + (PA-BAT+): A Tool to Assess Local Stakeholder Perceptions of the Flow of Benefits from Protected Areas. Gland, Switzerland.
- Kimbu NA (2011). The Challenges of Marketing Tourism Destinations in the Central African Subregion: The Cameroon Example. *International Journal of Tourism Research* 13(4):324-336.
- Leung YF, Spenceley A, Hvenegaard G, Buckley R (2018). Tourism and Visitor Management in Protected Areas: Guidelines for Sustainability. Best Practice Protected Area Guidelines Series No. 27, Gland, Switzerland: IUCN. Xii+. IUCN 120.
- Mabeu MC, Pongou R (2023). The Interplay Between Colonial History and Postcolonial Institutions. In the *Oxford Handbook of the Economy of Cameroon*, 63–94. Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780192848529.013.3>.
- Maurice ME, Ambe O, Flaubert G, Bekarikoh N E, JJ Fawoh (2020). The Activity Budget of Adult Chimpanzees (Pan Troglodytes Troglodytes) and Environmental Conditions in Mefou Primate

- Sanctuary, Centre Region, Cameroon. *Asian Journal of Research in Zoology*, March, 13-25. <https://doi.org/10.9734/ajriz/2020/v3i130080>.
- McHugh ML (2013). The Chi-Square Test of Independence. *Biochemia Medica* 23:143-149. <https://doi.org/10.11613/BM.2013.018><https://doi.org/10.11613/BM.2013.018>.
- Molina RD, Fernando JS, Alejandro JM, Camilo JV, Arias AP (2019). Forest- Induced Exponential Growth of Precipitation along Climatological Wind Streamlines over the Amazon. *Geophysical Research Atmospheres* 124 (5):2589-2599.
- MTWA (2014). Ministry of Tourism, Wildlife and Antiquities Sector Statistical Abstract Uganda. Uganda.
- Nibigira C (2019). Tourism Development in the East Africa Community Region: Why Is Tourism Development a Shared Agenda Among Only Some EAC Countries? Tiger Print. Tiger print.
- Nlom JH, Kana R, Walde Z (2013). *Ecotourisme: Etude de l'importance Economique et Social Du Secteur Forestier et Faunique Au Cameroon*. Cifor, Bogor, Indonésie. Edited by Ebaa Atyi Richard and Lescuyer Guillaume. Vol. 20. Bogor: CIFOR.
- Nyaupane GP, Surya P, Dallen JT (2018). Assessing the Sustainability of Tourism Systems: A Social–Ecological Approach. *Tourism Review International* 22(1):49-66.
- Peet VDM, Saayman M (2016). Travel Motivations of Tourists Visiting Kruger National Park. *African Protected Area Conservation and Science* 50 (January):154-159.
- Pyhälä A, Ana OO, Simon C (2016). Protected areas in the congo basin: failing both people and biodiversity?. Rainforest foundation, UK.
- Ralph C (2021). Using Finance to Protect and Enhance Biodiversity While Simultaneously Sequestering Carbon- a Chat with Ralph Chami. USA: Climate 21.
- Reimer JM, Rodolphe D, Joachim C (2020). Benefits and Gaps in Area-Based Management Tools for the Ocean Sustainable Development Goal. *Nature Sustainability* 4(4):349-357.
- Sintayehu A, Raminder KS (2020). Ecotourism development in Ethiopia: costs and benefits for protected area conservation. *Journal of Ecotourism* 20(1):1-26.
- Scholte P (2022). Fifteen Years of Delegated Protected Area Management in West and Central Africa: Five Recommendations to Guide Maturity. *Oryx* 56(6):908-916.
- Spenceley A, Snyman S, Eagles P (2017). Lignes Directrices Sur Les Partenariats et Les Concessions Touristique Dans Les Aires Protégées: Créer Des Revenus Durables Pour La Conservation et Le Développement. Rapport Au Secrétariat de La Convention Sur La Diversité Biologique et a l'union Internationale Pour La Conservation de La Nature (UICN).
- Visit Rwanda (2021). Gorilla Tracking. RDB, Kigali, Rwanda. February 26, 2021. <https://www.visitrwanda.com/interests/gorilla-tracking/>.
- Wamba G, Clarisse NY, Jeannette T (2022). Factors Associated with Amoebic Dysentery in Captive Non-Human Primates of The Mefou Primate Sanctuary. *The International Journal of Tropical Veterinary and Biomedical Research* 7(1).
- Wilcox BA, Echaubard P, Garine-Wichatitsky M, Bernadette R (2019). Vector- Borne Disease and Climate Change Adaptation in African Dryland Social- Ecological Systems. *Infectious Diseases of Poverty* 8(1):36.
- Witt AA (2019). Evaluating the effectiveness of wildlife educational program on knowledge, attitude and awareness among three selected secondary school students in perak, Malaysia. *International Journal of Education and Social Science Research* 2(2).
- Zyndron A, Krzysztof S, Chwialkowski C (2021). Valuing Protected Areas: Socioeconomic Determinants of the Willingness to Pay for the National Park. *Sustainability* 11(January). <https://doi.org/10.3390>.