



REVIEW ARTICLE

ANALYSES DES CROYANCES LOCALES LIÉES AU CHIMPANZÉS (PAN TROGLODYTES VERUS) DANS LE PAYSAGE CENTRAL DU PARC NATIONAL PENCELY-SOYAH-SABOUYAH, RÉPUBLIQUE DE GUINÉE

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ABSTRACT

From November 2023 to June 2024, local beliefs regarding the conservation of Pan Troglodytes Verus were monitored in the seven districts of the central landscape of Pencely-Soyah-Sabouyah National Park in Mamou. The objective was to analyze local perceptions and traditional beliefs of people associated with chimpanzees, then to exploit the threats to this great ape and highlight the constraints by highlighting its vulnerabilities. Their attitudes towards the creation of the future park, the threats, the causes of their abundance and their change in behavior, the beliefs and local perceptions of local communities on chimpanzees were studied using an ethno-zoological approach based on interviews using a questionnaire merged with quantitative and qualitative social research methods, through surveys, focus groups and participant observation (Ouedraogo et al. 2020). The results of this research show that the main cause of the increase in chimpanzees is due to 60.62% by traditional conservation, and the aggression of chimpanzees on people and the destruction of livelihoods (crops, plantations, livestock) occupy 64.37% of the cause of decline of this local belief. And the decline of this traditional belief represents the greatest threat which is at 53.12% against 34.37% of threats related to the destruction of their habitats and 10.62% due to the presence of predators in their habitats which push them to migrate out of the park, towards densely populated areas. The prioritization of chimpanzee conservation to the detriment of local populations occupies 46.87% of the weakness of the chimpanzee management method against 40.62% due to the lack of involvement of local communities in resource management. Finally, this study revealed that 53.12% of the cause of behavioral change of chimpanzees from docile to aggressive is due to the destruction of their habitat and 90.62% of local communities are opposed to the creation of the PSS national park on their territories. Despite the assurance of their protection by law (IUCN, 2024) in this locality, the decline of their conservation by local beliefs and the pressure of anthropogenic activities on their habitats could negatively influence their abundance (Narat et al, 2015).

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INTRODUCTION

Biodiversity conservation is a global concern and local beliefs about chimpanzees (Pan Troglodytes Verus) present both challenges and opportunities for collaboration to achieve the goals set out in the Global Framework for Nature Conservation (IUCN, 2024). The United Nations Convention on Biological Diversity emphasizes the importance of coexistence with nature and the protection of chimpanzees, in a world where wildlife protection is crucial, UNESCO has recognized chimpanzee culture as a World Heritage Site. (Sueur, 2024). To safeguard the endangered chimpanzee population, it is imperative to understand the perceptions of local beliefs about great apes in parks and protected areas (Cibot, 2015).

The conservation of primates and their habitats through traditional beliefs in rural areas in Gabon has become a threat to entire communities due to their damage and aggression on their livelihoods (FAO, 2023). The destruction of crops and the aggression of chimpanzees towards people in Gabon have adverse effects on communities, as repeated negative interactions with wildlife near their lands, fields and homes can undermine broader conservation efforts (IUCN, 2024). The conservation of chimpanzees in Guinea is a topic of great interest and efforts to achieve this goal adopt the involvement of local conservation of chimpanzees through traditional beliefs (Diallo, 2011). The prevailing view among local residents living with great apes in protected areas is mainly characterized by a sense of deprivation, even restriction, with the immediate negative consequences on individuals and their livelihoods effectively canceling out any positive perception of these areas (Ranaivomanan et al, 2022). Consequently, the expansion and modification of natural landscapes and habitats where humans and great apes live accelerates the frequency of human-wildlife contact (Bortolamiol et al, 2015). Chimpanzees bear a striking resemblance to humans and have a genetic makeup that is at least 98% identical to ours (Ruysschaert and Salles, 2022). Successful conservation of biodiversity in protected areas relies on a multitude of elements, one of which involves effectively addressing the issue of human-chimpanzee conflict. It is common for some animals to venture beyond the boundaries of protected areas, leading to clashes with neighbouring communities (Freddy, 2020). The conservation of chimpanzees in protected areas is heavily influenced by the traditional beliefs and attitudes of local residents. As this can contribute to human-wildlife conflicts and hamper the progress of conservation efforts. This was highlighted by a study conducted by (Ouedraogo et al. 2020). A complete understanding of solutions to human-wildlife conflicts cannot be achieved through the lens of environmental science alone. Understanding the human aspect is equally important, which encompasses a multitude of complexities including social, cultural, political, economic and legal factors (Carolynne, 2017).

Combining knowledge of local and scientific beliefs regarding chimpanzee management and humans synergistically contributes to a more comprehensive understanding especially in the context of local belief-great ape conservation reconciliations (KRIEF et al, 2021). In order to effectively manage chimpanzees in parks and reserves, it is crucial to involve local residents as stakeholders in conservation efforts and to use conservation as a catalyst for local development and quality of life improvement (Narat et al, 2015). Chimpanzee studies have played a crucial role in advancing the field of ethnozoology by shedding light on the impacts of local beliefs on chimpanzee conservation and improving our understanding of animal behavior (Dumez et al, 2015). Recognition of traditional knowledge by various international conferences following the ineffectiveness of authoritarian nature conservation policies. These conferences highlighted the importance of linking local beliefs to the preservation of natural habitats and wildlife. Bortolamiol et al. (2015). Examining local perceptions provides valuable insights into communities' environmental management priorities. Sense of place refers to how a community conceptualizes its environment in relation to its economy, activities, rituals, social structure, land governance, and cosmology (Boissier and Sassen, 2007). Many successful conservation practices, rooted in local customs and beliefs, have been observed to play a crucial role in safeguarding chimpanzee habitats (Aliou E. K., 2010). Road construction is one of the main causes of habitat fragmentation and loss. It reduces interaction between great apes, and directly threatens their survival by disrupting their movement across a landscape, whether for food and shelter or for breeding (Dunn and Dupain in (2017). Guinea has diverse regions well suited to the conservation of West African chimpanzees, known as Pan Troglodytes Verus. Local communities play a crucial role in safeguarding chimpanzees and biodiversity, providing ecological and tourism benefits. In Guinea, chimpanzees enjoy full protection under the Wildlife Protection Act and international agreements such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (IUCN, 2024). In addition, specific customary arrangements, such as the transmission of ancestral beliefs between generations, also contribute to chimpanzee conservation. Therefore, the future PSS National Park in Mamou, is home to one of the largest chimpanzee populations in Guinea, serving as a sanctuary for their protection. Even though there are regulations to protect chimpanzees, their populations may still face various pressures. These threats include unrestricted clearing of agricultural land, forest fires, carbonization, logging, overgrazing and other human-induced activities.

At the local level, there has been a notable increase in frustration among local communities towards wildlife, particularly chimpanzees, as they perceive them as a potential threat to their livelihoods. If environmental authorities fail to address this issue, the growing anger could undermine the long-held local beliefs of the local population regarding the protection of chimpanzees. This change in attitude may lead to retaliatory actions, such as hunting of great apes, leading to the depletion of valuable natural resources and loss of human lives. The consequences extend beyond the immediate community, posing a significant threat to the future survival of these primates in this future national park (SELAT, 2023). Furthermore, few studies have focused on local community beliefs towards chimpanzees in this locality. Previous studies conducted in the rural commune of Soyah consisted mainly of activity reports that briefly addressed conservation without really looking at the impacts of local community beliefs regarding chimpanzee conservation and the opinions of local communities on the creation of the PSS national park on their territory. Beyond these limited research efforts, there remains a significant knowledge gap regarding local beliefs, perceptions and attitudes. This research includes an analysis of traditional chimpanzee conservation through local beliefs. To investigate the causes of the abundance of chimpanzees over the past two decades, whether the decline in local beliefs about chimpanzee conservation is linked to a threat to their future, whether the presence of predators and the destruction of their habitats is the cause of their migration out of the park to densely populated areas, whether the weakness of the chimpanzee management system is linked to the lack of involvement of local communities in resource management, to determine the causes of the change in chimpanzee behavior and how local populations perceive the creation of the PSS National Park on their territory. Further research by an anthropologist would be necessary on the impact of great apes on human life and livelihoods, as well as on the complex relationship between humans and chimpanzees, are a priority before the creation of the PSS National Park.

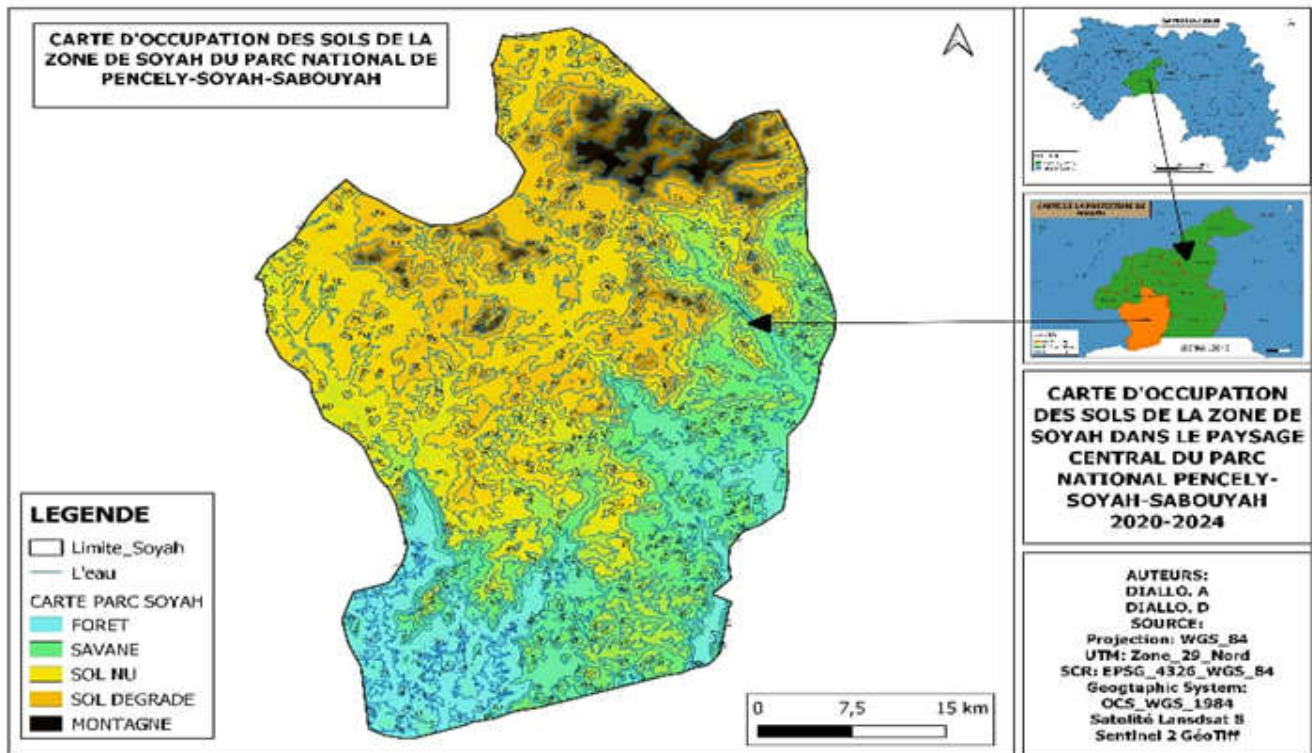


Figure 1. Map showing the location of the study area

MATERIAL AND METHODS

Material

Study site: The rural commune of Soyah is located in the central landscape of the Pencil-Soyah-Sabouyah National Park. This commune comprises seven districts, namely: the central district of Soyah, Boulhi, Kenten, Farenta, Berteyah, Fodéyah and Nobe. Soyah is located in the prefecture of Mamou and has a population of approximately 29,548 inhabitants, as reported in the RGPH of 2016. Spreading over a vast area of 906 square kilometers, Soyah offers a captivating landscape to explore. Located at the geographical coordinates of 12° 30" North and -11° 98" West, this place is home to a diversity of plant life and flagship species such as the chimpanzee and the elephant, making it a highly sought-after destination for tourists and researchers from all over the world. The park is fed by four major interconnected rivers, drawing water from the surrounding villages of Mamounwol, Gantawol, Follolowol and Dounia. The local economy revolves mainly around agriculture, livestock breeding and trade, which are the main sources of income for the community. Throughout the region, houses are sparsely scattered, allowing for a wider view of the central area of the park.

Located along National Road No. 1, Mamou-Faranah, running along the Guinea-Sierra Leone border, is the rural commune of Soyah, approximately 300 km from the capital Conakry. This region is home to a large population of chimpanzees, making it an ideal location for the preservation of these magnificent creatures. In addition, Soyah is home to breathtaking tourist waterfalls and offers stunning views of the surrounding mountains. Due to its abundant biodiversity, Soyah has gained national recognition and is renowned throughout the country.

Material used: To collect data for this research, create visual representations, and analyze the results, various tools and technologies were used. These included a GPS, QGIS, a Camons 20 Android mobile phone, a computer, Google Earth, Kobo Toolbox and Kobo Collect, Excel, and FSC store.

Research methodology: In our research methodology, we used a combination of four distinct approaches that complement each other to collect reliable data. First, we conducted statistical analyses to examine various factors at play. In addition, we used ecological research methods to identify environmental and ecological influences on behavioral change in chimpanzees as well as local communities. We also incorporated quantitative and qualitative social research methods, such as surveys, focus groups, and participant observation, to better understand local perceptions, values, beliefs, needs, attitudes, tolerance, and human behavior that impact chimpanzees. Finally, we used the ethnozoological approach, which allowed us to explore traditional knowledge and practices related to living organisms, including plants and animals. This holistic approach allowed us to uncover valuable information. The study allowed us to conduct various surveys among local residents to gather information on multiple aspects, including the origin and history of chimpanzees, the composition of chimpanzee populations and their habitats, characterization of human parameters, examination of traditional beliefs and local protection measures, exploration of human-chimpanzee relationships and endogenous conservation measures, assessment of socio-economic and cultural importance, identification of

limitations related to chimpanzee management methods, examination of the links between local beliefs and chimpanzee conservation, investigation of the reasons why chimpanzees are threatened by local people, analysis of the influence of traditional beliefs on the behavior of local communities, assessment of the impact of chimpanzees on the livelihoods of local people, understanding the perceptions and attitudes of local people affected by losses caused by chimpanzees, identification of the social class most affected by great apes, assessment of the magnitude of the threat posed by chimpanzees, chimpanzees to humans and their livelihoods, identifying areas most affected by human-chimpanzee and chimpanzee-human conflicts, assessing the availability of alternative resources during lean periods, assessing the appreciation of the local community for the creation of the P.S.S park and examining how resources are affected by crop predation by great apes. The statistical analysis method used in this study allowed us to collect data with the kobotolbox and kobo collection application in the field and use QGIS mapping and data collection software to organize them. Subsequently, the FSC Store statistical software is used to analyze the data, with the ultimate goal of coordinating chimpanzee conservation efforts with local conservation initiatives. To achieve these objectives, the following steps are undertaken:

Data collection in the Kobo collection application is carried out in seven specific districts and sectors of the Soyah local community, according to certain criteria. These criteria include ensuring the safety of researchers and their teams, accessibility to high-risk areas and individuals, availability of space for chimpanzees and their temporal distribution, presence index, human activities, availability of habitat resources, threats to chimpanzees, threats to local populations. And their means of survival, footprints, biological and ecological corridors, behavioral changes, chimpanzee attitudes toward humans, relationship between local beliefs and great ape conservation, opinions of local communities regarding the creation of new parks, availability of alternative resources in case of shortage, and the existence and limits of some mysterious sites accessible to tourism in relation to resource management. All these factors are crucial because chimpanzees are facing a serious threat of extinction, which were previously protected by local beliefs and laws, but which have now become an unavoidable danger.

DATA COLLECTION

Demographic surveys: The data collection process involved conducting a demographic survey using three semi-structured questionnaires. These questionnaires were developed based on extensive research and consultation with experts in the field (OUEDRAOGO et al, 2020). To ensure accuracy and effectiveness, the questionnaire was modified after preliminary administration. It covers different aspects such as dependent and independent variables related to conservation and the identity of the respondent (including name, first name, age, gender and occupation). In addition, it explores the activities undertaken, local beliefs associated with chimpanzee conservation, the impact of local chimpanzee attacks on women and children, people's perceptions and attitudes, food availability in their habitats, effects on crops and livestock, major causes of crop destruction, constraints encountered, opinions. On the creation and management of the new park, and their contribution to chimpanzee management. The target audience for these surveys was a variety of individuals, including park managers, traditional practitioners, local authorities, hunters, pastoralists (including farmers and herders), and other knowledgeable individuals familiar with the past behaviors and lifestyles of chimpanzees. To collect data, face-to-face interviews were conducted, lasting 15 to 20 minutes. All respondents were aged between 18 and 90 years. These interviews were conducted in a variety of locations, including areas close to chimpanzees and areas with human-chimpanzee conflict. To facilitate communication, local guides were recruited. A total of 160 individuals were interviewed either individually or in focus group discussions across the seven districts of the Soyah Rural Commune. Throughout the interviews, we captured concise video recordings of personal narratives detailing the dynamics between humans and chimpanzees in times of limited food resources, such as waterholes, revered rivers, cultivated fields, and farmlands. Public surveys were used to gather information on traditional beliefs about chimpanzees, conservation strategies, dynamics between park managers and local communities, challenges encountered, perspectives, motivations, and origins of the creation of the new P.S.S. National Park. We also explored the threats faced by chimpanzees and their habitats, as well as the underlying causes of chimpanzee attacks on children and women. Furthermore, it is worth noting that these communities have a unique and important connection with chimpanzees.

In order to better understand the conditions of chimpanzee populations and their habitats, we conducted an in-depth study focusing on various aspects. Our research included analyzing chimpanzee abundance, describing threats to their habitats, identifying biological and ecological corridors, studying predators, examining plant species used by chimpanzees for food and shelter, studying nest building patterns, and exploring the reasons behind this. Chimpanzees migrate to specific locations because of predators. During each observation walk, we carefully recorded essential information, including the date, GPS coordinates, number of nests observed per tree, distance of nests from the ground, identification of nest building species, selection of specific trees by chimpanzees, detailed descriptions of the vegetation in the territory, classification of nests into four categories (new, old, very old, and old), as well as the start and end times of each walk and the total distance covered.

Using commercial map applications Qfield and Kobo, GPS and a Kamon 20 Android device, we took photos during our observation walk. Our team was accompanied by a knowledgeable guide who adhered to ethical practices. Following a systematic sampling approach, we identified seven (7) locations based on specific criteria. Of these, four sites were located outside the park boundaries, while the other three were inside the park. The selection process was based on preliminary maps provided by the OGPRN management and the international project (WCF), which are responsible for the creation and management of the future park. During our exploration of the new P.S.S park, we conducted observation walks in areas carefully selected for their accessibility, the presence of chimpanzees, predators, biological corridors and areas where humans and chimpanzees frequently interact (such as rivers and water sources during times of drought). Our methods also took into account conflict zones. During this observation walk we found a total of 498 nests with two direct observations through chimpanzee calls, including 463 nests in 5

localities outside the park (Banga, Malikya, Peloun, Felo Goulot and Cère thiaga in the Gnamakouwel District) and 34 nests in 3 localities. Are located in the park (felo boulouti, felo konko fin, laffou, berteyah site in the Malikya district, Farenta district, sit bananaHoy, berteyah site in the lemouneko district), in the soyah classified forest, where chimpanzees nest. The largest number of chimpanzee nests were found outside the park and in densely populated areas. The distance between chimpanzee nests in these areas and villages is sometimes 200 meters to 1 kilometer. Take for example the village of Gnamakouwel, which has more human activity than inside the park.

We discovered a total of 15 corridors and 21 ecological corridors during our research. Detailed GPS points were recorded, noting the start and end points of each corridor, as well as the purpose of the movement, vegetation and topography. These results provide valuable information on chimpanzee movements and tourist attractions in the area. Notable destinations include the Konko fin and Felo Boulouli waterfalls, the captivating Damhin waterfalls and the mysterious Kalmasegue caves and these five entrances, Cère Tiaga the most populated area by chimpanzees outside the park where we found more than 415 nests. In addition, Dodolo Falls, the most visited tourist spot ka Wansanre, the special waterfalls of Peloun district and the enigmatic Felo Gulo River offer unique experiences. The 20-meter-long and 15-centimeter-wide Felo Gulo River has been a vital source of water for centuries, feeding chimpanzees, livestock and over 500 residents of the Felo Gulo area. Remarkably, the river never dries up, maintaining a constant volume and flow throughout the year, even during dry months like August or March. However, this constant water supply often leads to conflicts between humans, chimpanzees and livestock. During our exploration, we discovered traces of chimpanzee droppings and footprints of other wildlife, including warthogs and monkeys.

Characterization of human parameters: In order to analyze the factors that impact the chimpanzee population, we characterized different human parameters that allowed us to document information on human activities by observing them directly during field trips. During these observations, we note the presence of habitat, grazing, market gardening, bush fires, agricultural land, shifting cultivation (such as banana, mango, orange and coffee plantations in sensitive areas), carbonization, logging, wild fruit picking, and illegal fishing.

Data analysis and processing: The data obtained from the ethno zoological survey were recorded using QField tracking software and Kobo collections. It was then transferred to Microsoft Excel, to synthesize the data. FSC Store statistical software was used to graphically analyze the data and examine the impact of various variables on local beliefs regarding chimpanzee conservation. The study also assessed the challenges associated with the establishment and management of the future PN.PSS National Park, in the rural commune of Soyah in order to determine the prospects for the management of these great apes in the new P.S.S National Park.

RESULTS

The origins and history of chimpanzees, in the central landscape of Pencely-Soyah-Sabouyah National Park: Anthropomorphism and personification are prevalent throughout the rural commune of Soyah, encompassing its (43) sectors and (7) districts, as revealed by our investigation. In this sub-prefecture, it is strictly forbidden for any Muslim resident to harm or consume chimpanzee meat. Esteemed ethical figures such as Thiemo Issaga SOW, Mamadou maka KEITA, Mamadou Dian DIALLO, Mamadou Oury KEITA and others have pointed out that the existence of chimpanzees dates back centuries, and that even their great-grandparents encountered these primates. The directive to spare chimpanzees is deeply rooted in their Islamic faith, for them they are human beings who have disobeyed God and have been transformed into this kind of creature that closely resembles human beings. Throughout history, their ancestors have coexisted peacefully with chimpanzees, enjoying abundant resources and facing fewer threats from humans. From one generation to the next, they have been taught to refrain from killing or consuming chimpanzee meat, recognizing their shared humanity. Chimpanzees that look 98% like humans. They coexist harmoniously with humans and use traditional methods to protect farmland and plantations from crop damage. It is important to note that chimpanzees rarely pose a threat to humans except in exceptional circumstances. Although they have less legal protection, any attempts by chimpanzees to destroy crops are deterred by the use of weapons, if necessary.

Based on initial interviews, it was found that chimpanzees initially showed no aggression towards humans unless provoked. However, their behavior changed over time as they became increasingly destructive to crops and at the same time began to attack small livestock. In recent years in particular, they have been aggressive towards women and children, engaged in the destruction of plantations and attacked people and children on their way to school. Interviewees pointed out that these changes occurred as the human population increased and the chimpanzee habitat was destroyed. This led to a scarcity of resources, coupled with the presence of predators in the forest, causing a significant number of chimpanzees to migrate out of the park to densely populated areas. As a result, the chimpanzees became carnivorous and aggressive, posing a threat to local communities. It is worth noting that this coincided with the implementation of laws aimed at protecting chimpanzees. Consequently, the behavior of the local population in the rural commune of Soyah began to change towards chimpanzees during the last ten years. The lack of compensation for injuries and attacks caused by chimpanzees, combined with the perception that the creation of parks was an imposition by authorities seeking to take over ancestral lands, has accelerated the negative change in attitudes towards chimpanzees.

Current state of local beliefs and traditional protection measures: The current situation regarding traditional beliefs and local protection measures can be summarized as follows: A total of 160 individuals, comprising 97.6% males and 2.4% females, were interviewed in the seven districts of Soyah. It is clear from the interviews that both men and women recognize the sacred status

attributed to chimpanzees residing near human habitats. Traditional beliefs and customs play a crucial role in the conservation of chimpanzees, as they strictly prohibit the hunting, killing or consumption of chimpanzee meat, as well as the sale of chimpanzee babies. These protection measures are deeply rooted in the local culture and also extend to the treatment of chimpanzees. Consequently, chimpanzees are neither hunted nor consumed for their meat within the Soyah community. Throughout their history, it has been strongly believed that chimpanzees play an important role in seed propagation and natural forest regeneration. He noted that 97% of respondents said that chimpanzees are protected throughout Soyah, even in areas outside the park, but that there are still more chimpanzees in these areas than in some parts of the park. The negative changes in traditional beliefs, views and attitudes of local people towards chimpanzees and the creation of parks in their areas are due to the transformation of chimpanzees into an aggressive and destructive carnivore of culture, making them feel better protected by law than humans for the last ten years. Added to this is the fact that private and public authorities have remained indifferent to the damage and aggression caused by chimpanzees in this area of the future park. Currently, park authorities are prioritising conservation efforts only at the expense of local communities, failing to address the significant impact of great apes on people's livelihoods. It is crucial to prioritise the review of laws protecting human life in areas where human-chimpanzee-livestock conflict occurs.

Human-chimpanzee relationships and local conservation measures: In the very ancient past, the chimpanzees of the rural commune of Soyah displayed non-carnivorous behavior and only showed aggression when provoked on vital resources in their natural habitat. However, their behavior has changed significantly over the years, as they have started to show aggression towards women, children and adults. In addition, these chimpanzees have become a major concern for neighboring communities, as they now pose a threat to their survival and well-being by destroying crops such as oranges, bananas and mangoes, as well as attacking small livestock. This destructive behavior has even extended to single individuals, whether on bicycles or motorbikes.

The increase in the human population has led to a degradation of the chimpanzees' habitat and the decline of some species, causing a significant change in their behavior. This change has led them to be perceived as the most feared creatures by the local population. As predators encroach on their preferred habitats, chimpanzees are forced to migrate to more populated areas outside protected parks. This migration increases the frequency of human-chimpanzee encounters, leading to conflicts. These conflicts mainly occur at vulnerable locations such as waterholes, rivers, wild fruit areas, inter-village paths, during agricultural activities and in times of scarcity. It is worth noting that their habitat lacks an adequate supply of natural fruits. In their quest for sustenance, they frequently venture outside the park and head towards the concession area. On occasion, they help themselves to papayas, oranges, bananas, mangoes, avocados and other delicious fruits, carrying them with them, even in front of adults. These resourceful creatures have even been known to enter homes to devour calves and sheep and sometimes even pose a threat to the inhabitants, especially children and women. These chimpanzees, listed as endangered, enjoy both legal protection and respect from the local community, rooted in ancestral traditions. However, the continued harm and suffering inflicted by these primates on humans and their livelihoods has led to a decline in adherence to these customs. Unfortunately, neither public nor private entities have taken direct action to mitigate losses or compensate for damage caused by chimpanzees. Conflicts between humans, chimpanzees and livestock are common in the Republic of Guinea, including in rural communes such as Soyah, Boulhi and Kenten. Tragically, in 2021, a 37-year-old woman named Aissatou SOW, a mother of three, was the victim of one of these attacks. She was seriously injured and died that same day. After this tragedy, no environmental protection service even came to express its condolences to the bereaved. Since then, the majority of communes (five out of seven) have opposed the establishment of a park on the territory. The results of the survey show that women and children are most at risk of being targeted at all levels of society.

Socio-economic and cultural importance of chimpanzees: Chimpanzees, flagship species for conservation, hold significant socio-economic and cultural value in the rural commune of Soyah due to their personification. Their presence in each area contributes to various aspects, including the environment, economy, socio-cultural dynamics and religious practices. Their existence therefore attracts remarkable projects, tourists and national and international scientific researchers on a daily basis. The 64.37% of the inhabitants of the rural commune of Soyah report a decline in negative attitudes towards chimpanzees. This change in sentiment can be attributed to the alarming increase in chimpanzee attacks on individuals of all ages, resulting in harm to women, children and adults, as well as the destruction of vital crops such as bananas, oranges and mangoes. These primates are even known to target small livestock and display aggressive behaviour towards people in their compounds and along travel routes, including those on the way to school or between villages. Consequently, people directly affected by these threatening encounters have developed negative perceptions towards chimpanzees. It is worth noting, however, that despite these adverse incidents, local residents recognise the important role that chimpanzees play in the regeneration of the forest ecosystem through seed dispersal in the core landscape of the P.S.S.

Influence of human activities on behavioral change and population dynamics of chimpanzees: Chimpanzee behavior and population fluctuations are strongly influenced by human activities. Factors such as predators and human-induced variables are often associated with chimpanzee abundance in specific areas. Field studies have revealed that chimpanzees tend to migrate to areas that are heavily influenced by human presence and have high population densities. This migration is driven by the need to avoid predators, which seek refuge in chimpanzee habitats that are less affected by human activity. As a result, these densely populated areas are home to increasing numbers of chimpanzees and their social groups. This in turn leads to increased encounters between chimpanzees and competition for resources, especially during lean periods. Over time, great apes have become aggressive toward humans, consuming livestock and devastating crops and plantations. This led to local communities rising up against these chimpanzees, considering them a threat. However, the law fully protected these creatures, leading to conflicts between humans, chimpanzees and livestock in this particular area. Conflict zones are often plagued by bushfires, shifting cultivation, carbonization, timber extraction and poaching. Through our field observations, we found that chimpanzees show a preference for human-

inhabited areas over habitats that are rich in food but also inhabited by predators. We can infer that chimpanzees are prioritizing security over the benefits of a resource-rich habitat that comes with the presence of predators.

Presentations and interpretations of research results

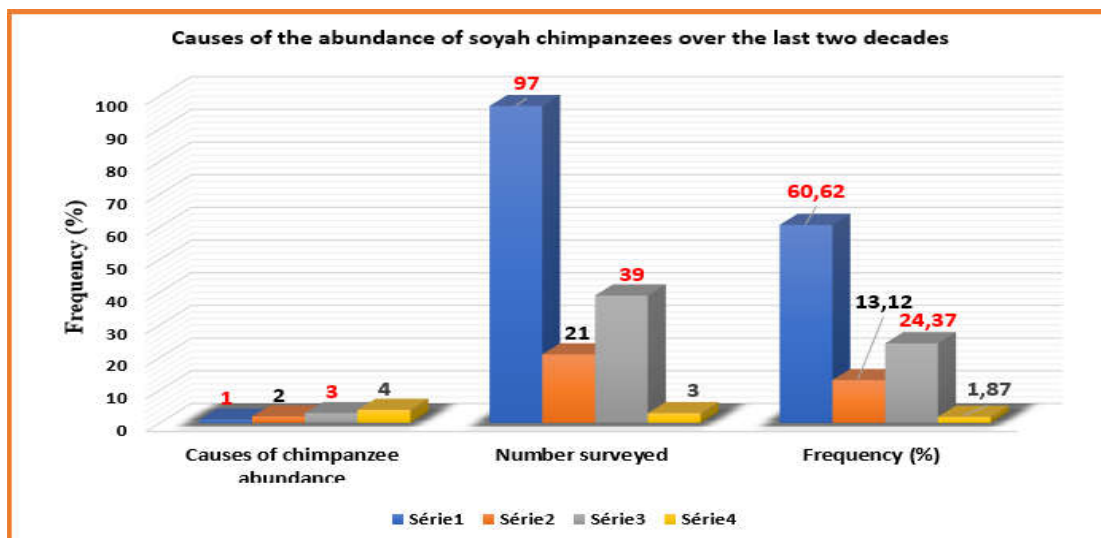


Figure 2. Causes of chimpanzee abundance in Soyah over the past two decades

Legend: 1: Protection of chimpanzees by traditional beliefs (which prohibit killing or eating a chimpanzee); 2: Full protection by law as a species threatened with extinction; 3: Richness of their habitats; 4: Others.

It emerges from this figure that the reasons for the increase in chimpanzees during the last two decades (2000-2024) were revealed by the respondents, the protection of chimpanzees by traditional beliefs is one of the reasons whose frequency of mentions is the highest at 60.62%, the second reason which was also mentioned by the local populations is the richness of their natural habitats which is at 24.37%, against 13.12% which is due to the intensification of the application of laws which fully protect chimpanzees as critically endangered species (IUCN, 2024), finally the 1.87% ignore the reasons for the abundance of chimpanzees.

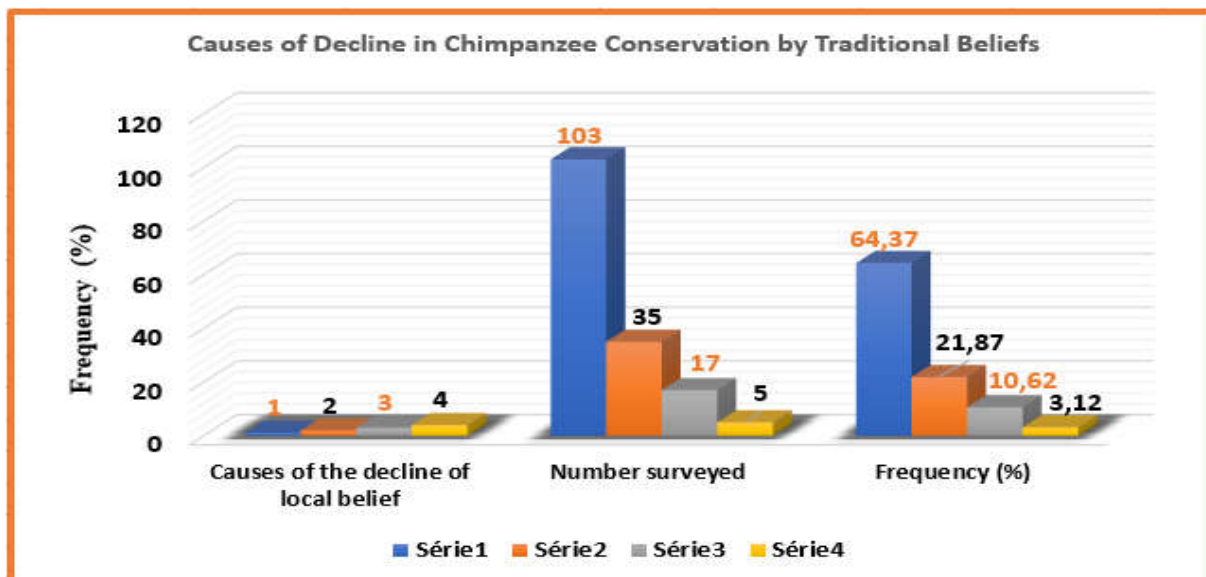


Figure 3. Causes of decline in chimpanzee conservation through traditional beliefs

Legend: 1: Chimpanzee aggression towards people; 2: Destruction of livelihoods (crops, livestock, plantations); 3: Lack of compensation for losses caused by chimpanzees; 4: Others.

From this figure, more than 64.37% of the people surveyed agree that the protection of chimpanzees by traditional beliefs and the way they are perceived by local communities are in decline because of their aggression towards people and the reasons for this decrease were mentioned by the populations surveyed. To this end, two (2) other main reasons were revealed by the respondents. The destruction of the livelihoods of local populations (crops, livestock, plantations, etc.) amounts to 21.87%. The second reason is the lack of involvement of public and private authorities to compensate for the losses caused by great apes, compared to 3.12% who are unaware of the reasons for the decline in the protection of primates by local beliefs.

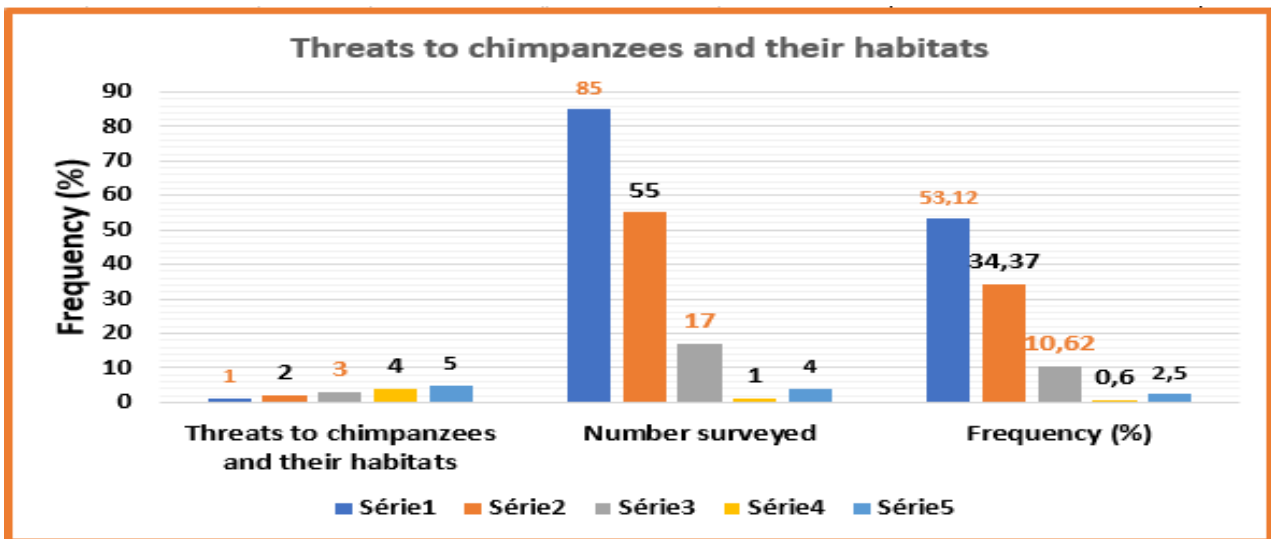


Figure 4. Threats to chimpanzees and their habitats

Legend: 1: Decline in local beliefs related to chimpanzee conservation; 2: Destruction of their habitats; 3: Presence of predators in their natural habitats; 4: Poaching; 5: Others

This figure shows that the future of wild chimpanzees in Soyah is seriously threatened, as indicated by a survey that revealed a significant decline of 53.12% in traditional beliefs in their protection. When talking about chimpanzees, 34.37% showed the feeling that the destruction of their habitats is the second threat to their future. In addition, 10.62% recognized the threat posed by predators, which has led to a mass exodus of chimpanzees from their once abundant habitats to more densely populated areas. This has led to increased competition with local residents for vital resources, exacerbating human-chimpanzee conflicts. Surprisingly, only 0.6% of poaching incidents occur in Soyah, while 4.16% are unaware of the reasons that put the chimpanzees at risk.

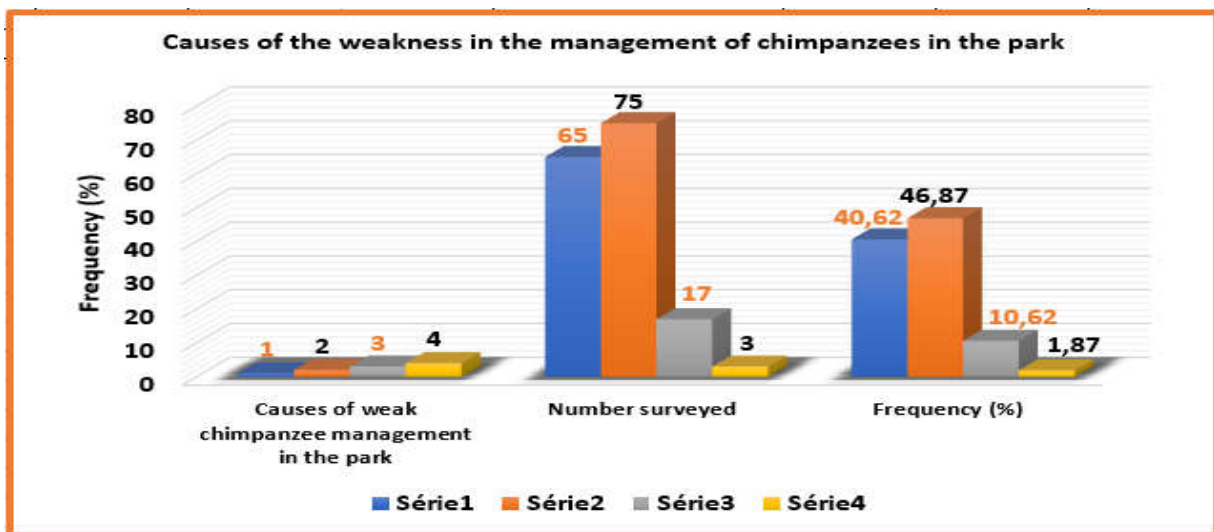


Figure 5. Causes of the weakness of the chimpanzee management mode in the park

Legend: 1: Lack of involvement of local communities in resource management; 2: Prioritization of chimpanzee conservation by neglecting local populations and their interests by public and private authorities; 3: Lack of competent human resources to be a good arbiter between humans and chimpanzees; 4: Others.

From this figure, it is clear that gaps in the chimpanzee monitoring strategy in the park is the conviction of 46.87% of individuals who give priority to the preservation of great apes rather than the interests of local communities. 40.62% attribute this weakness to a lack of involvement of local communities in resource management is currently minimal, while 10.62% expressed the opinion that there is a shortage of capable individuals who can impartially guarantee the fair and just distribution of resources between humans and chimpanzees. Finally, only 1.87% are unaware of the weaknesses inherent in this managerial approach.

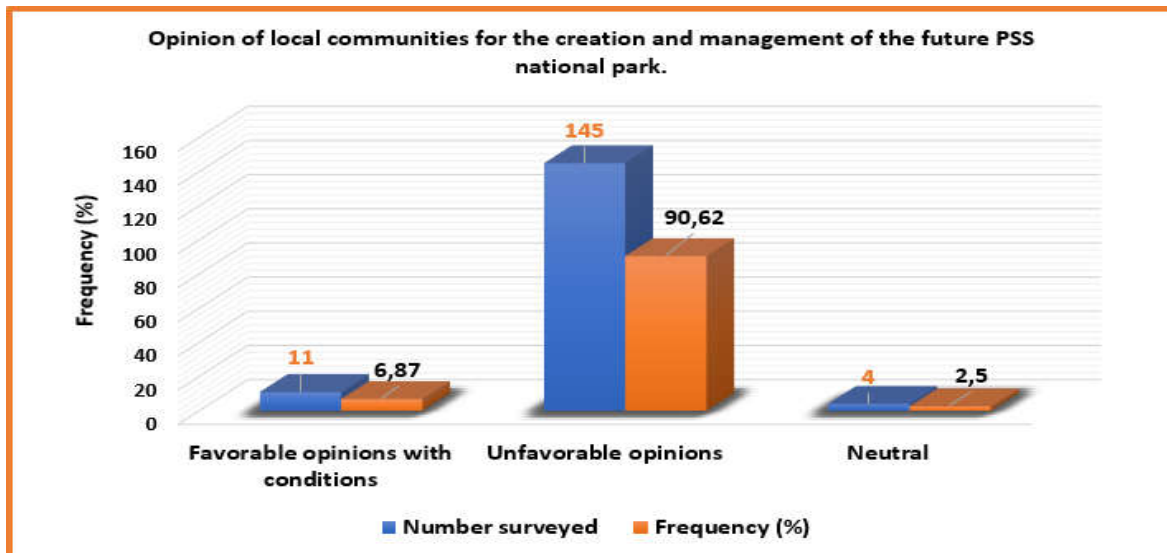


Figure 6. Opinions of local communities for the creation and management of the future PSS national park

Legend: 1: Favorable opinions with conditions; 2: Unfavorable opinions; 3: Neutral.

This figure shows that the majority, 90.62% of individuals, are opposed to the creation of a national park on their territory, unless forced to do so by the government. Conversely, only 06.87% support the creation of national parks on their territories, provided that a framework is established between the managers of the future park and local communities. This framework will guarantee sustainable management, as well as a fair and equitable distribution of resources, while also implementing a comprehensive plan to mitigate the negative impact caused by great apes on their territories. Finally, a small proportion, about 02.5%, are still unaware of the potential consequences related to the creation of the PSS national park in their locality.

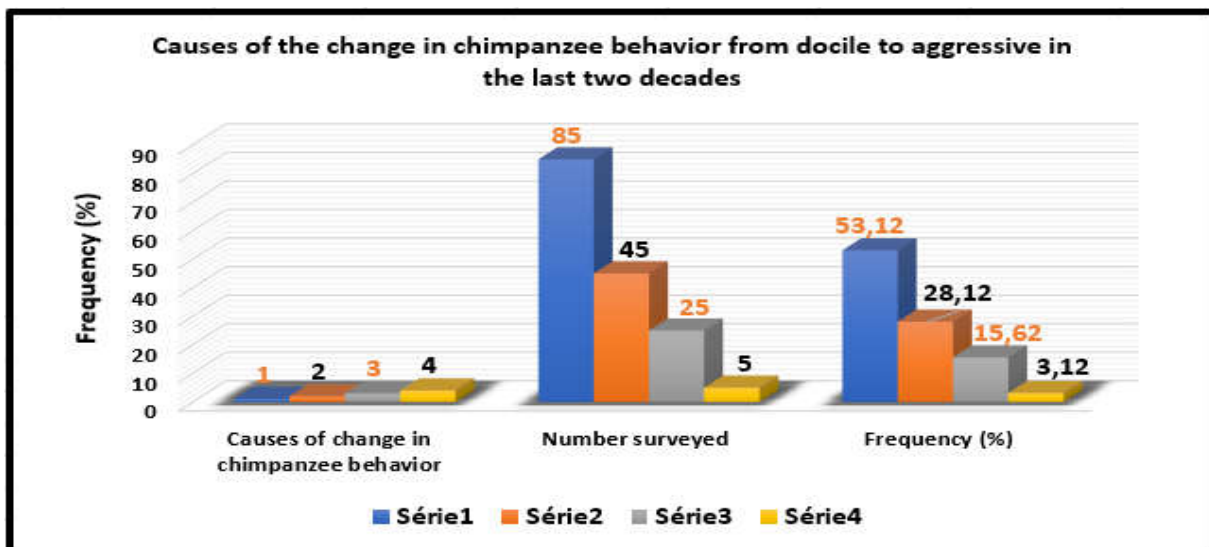


Figure 7: Causes of the change in chimpanzee behavior from docile to aggressive in the last two decades

Legend: 1: destruction of their habitats; 2: presence of predators in their rich and varied natural habitats; 3: The application of laws fully protecting chimpanzees has made them safe; 4: Others.

In this figure, it shows that human activities that lead to the destruction of chimpanzee habitats have been identified as the main cause, accounting for 53.12%, of the change in their behavior from docile to aggressive. This is closely related to the increased proximity of humans to chimpanzees. Additionally, 28.12% attribute the behavioral changes to the presence of predators in the chimpanzees' natural habitats, forcing them to migrate to more populated areas and compete for resources. The 15.62% acknowledge that effective laws protecting chimpanzees instill in them a sense of trust and freedom, allowing them to observe human behavior without fear. Finally, 3.12% are unsure of the exact cause of these behavioral changes in great apes.

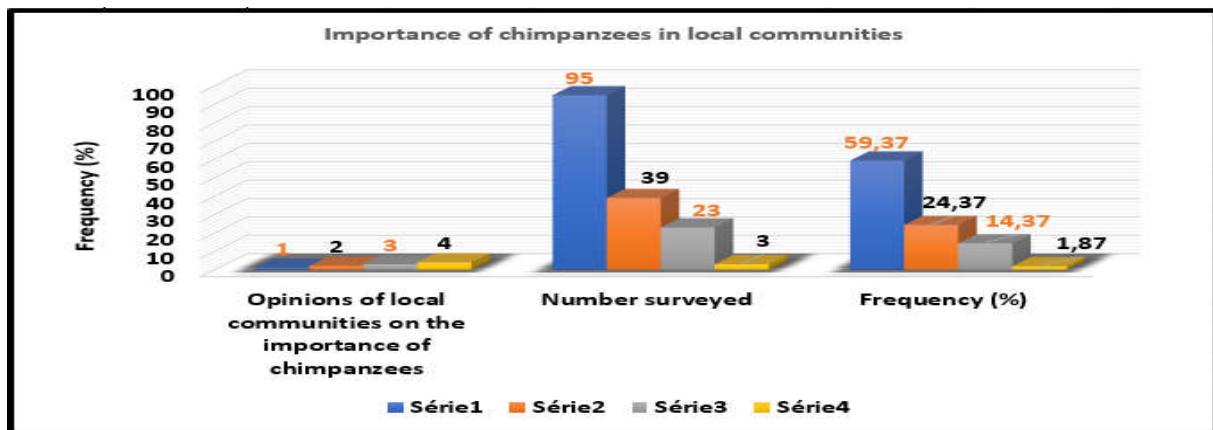


Figure 8. Importance of chimpanzees in local communities

Legend : 1: Protective role of the forest (seed dispersal and natural regeneration); 2: Tourism role and local development; 3: Cultural role on medicinal plants assured; 4: Others.

In this figure, it shows that in the face of imminent threats to chimpanzees in the core landscape of PSS National Park, a significant majority (59.37%) of individuals recognize the crucial role that chimpanzees play in seed dispersal and their contribution to forest preservation. Furthermore, a notable percentage (24.37%) expressed confidence in the survival of chimpanzees, provided that environmental authorities implement measures to mitigate the damage caused by these creatures. Such measures could potentially transform chimpanzees into a valuable resource, promoting local income, development and employment opportunities for soyah communities. Conversely, a minority (14.37%) highlighted the cultural importance of chimpanzees, emphasizing their role in teaching self-medication and zoopharmacognosy to the local population. Unfortunately, a small fraction (1.87%) failed to recognize the environmental, economic and cultural importance of chimpanzees.

DISCUSSION

The protection of chimpanzees by local beliefs has been given special attention in the core landscape of the new P.S.S. park in Mamou. The results provide insight into traditional local beliefs and perceptions about chimpanzees. Local perceptions and Islamic beliefs about chimpanzees are important assets for the protection and conservation of the great apes of the Soyah, my results are consistent with the research conducted by Sabrina Krief and her team in (2015) on bonobos residing in Bolobo territory in Congo. Due to the striking resemblance of behavior between humans and bonobos, the Batéké community is cautious about killing these human-like, tailless creatures. It is clear that bonobos with behaviors similar to humans should be entitled to the same degree of customary protection. The success of increasing chimpanzees through traditional beliefs is consistent with the results of a study conducted by Roe, Nelson and Sandbrook in (2009) which showed the effectiveness of community participation through local beliefs in natural resource management in various regions of sub-Saharan Africa. The authors claimed that this approach to local conservation can effectively combat illegal hunting and killing of chimpanzees in specific regions of the world. Therefore, the implementation of these measures has led to a notable increase in the chimpanzee population within these designated regions and this is consistent with my results. However, the situation is radically different in regions where chimpanzees are perceived as a threat to both humans and livestock. In such areas, the survival of chimpanzees is seriously threatened, and without decisive action by national authorities to mitigate losses from interactions with chimpanzees, the species faces imminent threat of extinction. This situation is particularly evident in the core landscape area of the P.S.S. National Park.

Chimpanzee aggression against women and children in the new PSS park is causing a decline in local beliefs and is becoming one of the greatest threats to the chimpanzee population, particularly in the districts of Kenten, Boulhi, Farenta and Soyah Centre. This is consistent with research conducted by Sandbrook et al, in (2009) as part of the Wild life Integration for Livelihood Diversification (WILD) project in Namibia and Botswana, which confirmed that in some cases, local communities can become victims of their own success. The movement of chimpanzees into densely populated areas, leading to an increase in human-chimpanzee conflict. In situations where resources are scarce, chimpanzees may resort to attacking humans and destroying their means of survival. This is also confirmed by studies conducted by Hockings and Humle, (2009) in the Guinea Forest, by Bosou chimpanzees venturing out of the forest to plunder crops during the lean periods of wild fruits. The victims of the attacks and damage have filed complaints several times with public and private authorities, unfortunately, no concrete measures have been taken to compensate for the considerable damage caused by these great apes, these results have also been confirmed by (Marchand in 2016) in the Uatumã reserve (Brazilian Amazon). On the other hand, this does not correspond to the studies conducted by (Selat, in 2023) in the Nouabale-Ndoki National Park in Congo, the park employs more than 90% of the communities surrounding the park, and provides support and compensation to local residents affected by the destruction and attacks on basic food products. Chimpanzee destruction of crops and livestock is higher than the number of attacks on humans in the central PSS landscape, this is

consistent with research by Carrollynne in (2017) In Asia, Pan Troglodytes Verus has the unique characteristic of mainly targeting livestock rather than humans. Anthropogenic actions may be one of the causes of the change in chimpanzee behavior from docile to aggressive during lean periods and have detrimental effects on chimpanzee conservation, this is consistent with research by Trèves et al. (2009) observed a significant decline in chimpanzee populations worldwide, attributed to increased human activity and the presence of predators in their habitats, which forces them to migrate to densely populated and inhospitable areas. Local conservation efforts of local communities in Soyah are confirmed. At the 5th IUCN World Parks Congress in Durban in 2008, Boissière and Doumenge stated that the inclusion of local people's rights in decision-making processes for the creation of parks and protected areas was becoming a controversial issue. The Durban Accord (2005) went further by requiring the direct involvement of local communities by conservation agencies and states in the creation of protected areas. IUCN openly acknowledged at the conference that isolating local communities from their natural environment when creating protected areas would only lead to mistrust and opposition, this is consistent with the isolation of local people in the management of resources in the PSS National Park in Soyah. There is a positive correlation between the decline in local belief in chimpanzee protection and changes in chimpanzee behaviour, with chimpanzees now becoming aggressive towards women and children and destroying the livelihoods of local communities. This is supported by Sarah Bortolamiol's work in 2015 in Kibale National Park, Uganda.

The future of chimpanzees in the core landscape of PSS National Park depends largely on the preservation of local beliefs. This is consistent with the findings of Harpet et al, in (2008) in Sakalava, Madagascar regarding the importance of traditional beliefs on primate conservation. It is crucial to recognize the rights of local people directly involved and to actively involve them in projects, rather than focusing solely on conservation and protected area creation without considering the importance of local beliefs. To ensure the success of chimpanzee conservation, policies must be implemented and managed in a fair and equitable manner, allowing for the harmonization of local beliefs and primate conservation for the foreseeable future.

CONCLUSION

This research successfully determined the causes of the decline in the protection of Pan Troglodytes Verus by the traditional beliefs and perceptions of the local communities of Soyah that are crucial for their conservation and shed light on the historical origins and imminent threats faced by chimpanzees in the central landscape of the Pencely-soyah-sabouyah park. The study showed that great apes play a vital role in safeguarding forests, and their presence is highly valued by the local population, provided that public and private authorities implement measures to mitigate the damage and loss of life inflicted by these primates. Although chimpanzees enjoy legal and religious protection, they are still under strong pressure from anthropization and the presence of predators in the park, pushing them to migrate to densely populated areas. Today the mentality and traditional beliefs of the local Soyah community have undergone a detrimental change due to the escalation of violence against women and children, as well as the destruction of vital resources such as crops and livestock. The objective of this study is to reconcile local great ape conservation with traditional beliefs, while reducing poverty in the neighboring communities surrounding the park. For sustainable management it is essential that the park management authorities organize educational programs and workshops to raise public awareness and provide training on how to effectively manage the available resources through active participation.

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