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REVIEWER'S REPORT

Manuscript No.: IJAR-55746

Title: CRUCIAL ROLE OF VULTURES IN THE LIVES OF LOCAL COMMUNITIES ON THE OUTSKIRTS OF COMOÉ NATIONAL PARK, NORTHEASTERN CÔTE D'IVOIRE.

Recommendation:
Accept as it is

Rating	Excel.	Good	Fair	Poor
Originality		√		
Techn. Quality			√	
Clarity		√		
Significance			√	

Reviewer Name: Dr. Manju M

Detailed Reviewer's Report

BACKGROUND OF RESEARCH WORK

Ecological Importance of Vultures and Conservation Context

Vultures play indispensable ecological roles as obligate scavengers, facilitating nutrient recycling and limiting the spread of infectious diseases. Across Africa, vulture populations are declining rapidly due to anthropogenic pressures. In Côte d'Ivoire, especially around protected areas such as Comoé National Park (CNP), vultures are increasingly exposed to human exploitation. Their conservation is therefore both an ecological and public health priority. Understanding the drivers of decline requires integrating biological data with socio-cultural dimensions. This study responds to that need by examining human–vulture relationships through an ethnozoological lens.

Rationale for an Ethnozoological Approach

Human–wildlife interactions in West Africa are deeply shaped by cultural beliefs, traditional medicine, and livelihood practices. Ethnozoology provides a framework for documenting indigenous knowledge, perceptions, and uses of wildlife species. Such approaches help explain why certain species are targeted despite legal protection. In the context of vultures, cultural and symbolic values often outweigh conservation concerns. Integrating indigenous knowledge is essential for designing conservation strategies that are socially acceptable and sustainable. This study therefore positions ethnozoology as a bridge between biodiversity conservation and human well-being.

Objectives and Scope of the Study

The study aimed to document local knowledge, perceptions, and uses of vultures among communities bordering Comoé National Park. Specific objectives included identifying vulture species recognized locally, cataloguing categories of use and body parts exploited, and quantifying their cultural importance using ethnozoological indices. The study also sought to identify anthropogenic threats linked to traditional practices. Ultimately, the research aimed to generate evidence to support inclusive, community-based conservation strategies. The scope covered multiple villages and socio-demographic groups.

Overview of the Study Area and Socio-Ecological Context

Comoé National Park, a UNESCO World Heritage Site and Biosphere Reserve, covers approximately 1,148,756 hectares in northeastern Côte d'Ivoire. The park comprises diverse savanna–forest ecosystems

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under a subhumid tropical climate. It supports exceptional biodiversity, including over 497 bird species and several vulture species. Numerous villages from five administrative departments are located along its periphery. The close proximity of human settlements to the park creates intense human–wildlife interactions. This ecological and cultural complexity makes CNP an ideal setting for ethnozoological research.

METHODS

Study Design and Survey Period

The study employed a cross-sectional ethnozoological survey conducted between August 1 and August 30, 2022. An exploratory phase carried out in June 2022 helped refine research tools and assess local knowledge. The design combined qualitative and quantitative approaches to capture both cultural meanings and measurable patterns of use. This mixed-method strategy strengthened the analytical depth of the study. Ethical considerations and informed consent were respected throughout the research process.

Sampling Strategy and Sample Size Determination

Sample size was determined using Dagnelie's statistical formula based on preliminary survey data. To ensure representativeness, the final sample was expanded to 255 respondents. Participants were selected from 23 villages bordering the park. Snowball sampling was used to identify individuals with ethnobiological knowledge, particularly hunters, traditional healers, and elders. This strategy ensured access to knowledgeable informants while reflecting community diversity.

Socio-Demographic Characteristics of Respondents

The respondent population was predominantly male (93.27%), reflecting gendered access to wildlife-related knowledge. Most respondents were adults aged 30–59 years, with a mean age of 52 years, indicating that ethnobiological knowledge is concentrated among mature individuals. The dominant ethnic group was Koulango, followed by Lobi, Malinké, Djimini, and Lohoron. Farmers constituted the largest occupational group, alongside ex-poachers and traditional healers. These profiles highlight the social actors most directly involved in vulture use.

Data Collection Techniques and Research Tools

Data were collected using structured and semi-structured questionnaires administered through face-to-face interviews. KoboCollect software and tablets were used to enhance data accuracy and efficiency. Focus group discussions complemented individual interviews to validate responses. GPS devices were used for georeferencing survey sites, while digital cameras supported visual documentation. Local translators facilitated communication across language barriers.

Biological Material and Species Identification

The biological material comprised vulture species occurring within and around Comoé National Park. Species identification was based on respondent descriptions, vernacular names, and observable traits. Scientific validation was conducted using a West African bird identification manual. This approach ensured alignment between indigenous knowledge and formal taxonomy. Integrating both systems enhanced the credibility and relevance of species records.

Data Analysis and Ethnozoological Indices

Quantitative indices were used to assess cultural importance and exploitation intensity. These included Frequency of Citation (FC), Use Value (UV), and Informant Consensus Factor (ICF). These indices allowed systematic comparison of use categories and body parts. Statistical analyses were applied to evaluate identification criteria and consensus levels. The analytical framework provided measurable indicators of conservation pressure.

RESULTS

Diversity of Vulture Species Recognized

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Five vulture species were identified by respondents as occurring in the study area. These species are well embedded in local knowledge systems and cultural practices. Recognition of multiple species reflects relatively high ecological awareness among communities. However, identification relied primarily on indigenous classification rather than strict scientific taxonomy. This highlights both the richness and limitations of local species differentiation.

Local Nomenclature and Identification Criteria

Communities used diverse vernacular names for vultures, often linked to diet, behavior, or morphology. In some cases, a single name referred to multiple species, while other names distinguished species based on ecological traits. Plumage color was the most frequently cited identification criterion, followed by head and beak morphology. Lesser-used criteria included odor and vocalization. Statistical analysis showed no significant differences among criteria.

Categories of Vulture Use

Five major categories of vulture use were documented: traditional medicine, magic, food, economy, and ornamentation. Traditional medicine dominated overwhelmingly, followed by magic and food consumption. Economic and ornamental uses were marginal. These results indicate that cultural and health-related beliefs are the primary drivers of vulture exploitation. The multifunctional use of vultures reflects their deep integration into local societies.

Frequency of Citation of Use Categories

Traditional medicinal use recorded the highest frequency of citation (90.43%), indicating widespread reliance on vulture-based remedies. Magical and food uses each showed moderate citation levels (28.72%). Economic (2.31%) and ornamental (1.06%) uses were rare. These patterns demonstrate uneven pressure across use categories. Medicinal demand represents the most significant conservation concern.

Vulture Body Parts Utilized

A total of thirteen vulture body parts and organs were reported as being used. Ten parts were used for medicinal purposes, while eleven were associated with magical or spiritual practices. The diversity of organs used reflects the perceived multifunctionality of vultures. Such extensive anatomical use increases harvesting pressure. This pattern is particularly concerning for slow-reproducing scavenger species.

Use Values of Body Parts

The head (UV = 0.27), legs (UV = 0.25), and beak (UV = 0.21) recorded the highest use values. These parts are believed to possess strong symbolic and therapeutic properties. Many organs were used across multiple categories, intensifying demand. High use values indicate selective but repeated exploitation. These findings point to specific pressure points for targeted conservation interventions.

Informant Consensus and Cultural Agreement

Very high Informant Consensus Factors were recorded for traditional medicine and food uses (ICF ≈ 0.97). This indicates strong agreement and shared cultural norms among respondents. Magical uses also showed substantial consensus, while economic and ornamental uses did not. High consensus suggests that these practices are culturally reinforced and persistent. Such cohesion poses challenges for behavioral change.

DISCUSSION

Cultural Significance and Human–Vulture Relationships

The findings demonstrate that vultures are not merely wildlife species but culturally embedded entities with symbolic, medicinal, and subsistence value. Local ecological knowledge reflects long-term interaction with the environment. However, cultural importance translates directly into material exploitation. This dual role complicates conservation efforts. Recognizing vultures as socio-cultural resources is essential for effective management.

Conservation Implications of Use Patterns

High use values and consensus levels indicate sustained and widespread demand for vulture parts. Even low hunting rates can have severe impacts on vulture populations due to their low reproductive rates.

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Traditional medicinal and magical practices represent major anthropogenic threats. These pressures may act synergistically with other threats such as habitat loss and poisoning. The results highlight a clear conflict between cultural practices and conservation objectives.

Challenges for Conservation Management

Differences in species recognition and knowledge distribution among ethnic groups may complicate conservation messaging. Enforcement-based approaches alone are unlikely to succeed in such culturally complex contexts. Ignoring local beliefs risks alienating communities and undermining conservation outcomes. Instead, conservation must engage with, rather than dismiss, traditional value systems. Ethnozoological data are therefore critical for informed decision-making.

CONCLUSIONS & RECOMMENDATIONS

Overall Conclusions of the Study

The study reveals a strong socio-cultural dependence on vultures among communities surrounding Comoé National Park. While indigenous knowledge demonstrates ecological awareness, it also drives significant anthropogenic pressure. High use values and consensus factors signal potential overexploitation risks. The findings underscore the importance of integrating cultural dimensions into conservation planning. Ethnozoological research thus emerges as a vital tool for biodiversity conservation.

Future Perspectives and Conservation Recommendations

Future conservation programs should adopt inclusive, community-based approaches that integrate traditional knowledge holders. Collaboration with traditional healers and local leaders is essential to reduce demand for vulture parts. Promoting culturally acceptable alternatives to vulture-based remedies can alleviate harvesting pressure. Further ecological studies are needed to assess population trends of identified species. Sustainable vulture conservation ultimately depends on aligning ecological goals with community values and livelihoods.