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Indigenous People Rituals and Conservation of Threatened Bird Species Among Ethnic Groups, in Cross River State, Nigeria		
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Keywords		Abstract
Indigenous people, conservation, threatened bird species, ethnic groups Correspondence Email: Kevinacha7@gmail.com https://doi.org/10.60787/jeate.vol9no1.699-710		This study examined the relationship between indigenous people rituals and conservation of threatened bird species among ethnic groups in Cross River State, Nigeria. To achieve the purpose of this study a null hypothesis was generated to direct the study. Literature review was done according to the variables under study. Correlational research design was adopted for the study. A sample of 731 respondents was randomly selected for the study. The selection was done through multistage sampling procedures. The questionnaire was the main instrument used for data collection. Descriptive statistics and Regression analysis were the statistical analysis techniques adopted to test the hypothesis under study. The hypothesis was subjected to testing at .05 level of significance with relative degrees of freedom. The results of the analysis revealed that, indigenous people rituals significantly predict conservation of threatened bird species among ethnic groups in Cross River State. The result further showed that Men are responsible for performing bird-related rituals. Interestingly, the result evidence that Hooded Vultures are not hunted for mystical purposes by indigenous people in the study areas, however showed that Yellow-casqued Hornbill and African Grey Parrot hunted for their body parts for rituals purposes, traditional medicine, and magical power. Based on the findings of the study it was recommended among others that conservation education programmes should integrate rituals into awareness programmes in schools as efforts to enhance the involvement of the younger generation in key conservation activities. This could be achieved by adopting storytelling and involving traditional knowledge holders in documenting folklore.

INTRODUCTION

The effectiveness of biodiversity conservation in Nigeria and other parts of the world depends largely on how local people are involved in the conservation programme, how they interact with the natural environment, their engagement with the wildlife, and their level of environmental literacy (Pam et al., 2018). Therefore, understanding and incorporating Indigenous people's rituals of biodiversity (birds) to their daily living, is also observed to be an effective guide to conservation education as well as management and conservation of biodiversity in Nigeria. Hence, the necessity of understanding and identifying the societal Indigenous people's indigenous people rituals, attached to biodiversity is observed to play a critical role in the protection and conservation of biodiversity, given the increasing

depletion in their population and habitat, most especially those of global conservation concern, which include threatened avian species on the International Union for the Conservation of Nature (IUCN).

Studies have shown that the loss of cultural diversity, which generally includes rituals practices among indigenous people of over 250 ethnic groups in Nigeria, which is intricately linked to the loss of some biological diversity of an area. Different ethnic groups have different ways of living and interacting with bird species, which is usually reflected in their understanding and interpretation of the natural environment due to accumulated knowledge from many years of residence and interacting with different bird species in their natural environment. Similarly, the interlink and loss of species or the degradation of an ecosystem can lead to the destruction of a way of living and to a greater extent the collapse of ecosystems and civilisation (Omotoriogun, 2019)

Bird species have been classified as major indicators of environmental conditions. Therefore, we cannot talk about bird threats, population decline, habitat loss and conservation in general without understanding the interactions between humans and birds, their activities within habitats, as well as the cultural significance and ecosystem functions of birds to indigenous people. Thus, the need to understand the human-bird relationship is critical, as conservation efforts without the full knowledge of the diverse traditional ecological knowledge, what myths are held on birds, the cultural significance of species, what folklore Indigenous people hold on birds, as well as indigenous people rituals, may be detrimental to the success of modern conservation efforts.

The conservation of threatened bird species and their habitats extends refuge to other species. Therefore, the conservation approach of avifauna will have a strong impact on the effective conservation of other biological diversity in general. Birds have been an integral component of the environment. However, there is limited public understanding of this bird's relationship with local indigenous people in the study area; hence, empirical understanding of their interactions is necessary for their sustainable conservation and interaction amongst ethnic groups in the study area. Consequently, some effective ways to sustain this relationship may be through local engagement and integration of Indigenous people, communities, academic institutions, and government and non-government institutions in the development of ethno-ornithological programmes. This is believed to enhance indigenous people's understanding of the ecological value of birds, help mitigate non-sustainable human threats to birds and motivate environmentally friendly consciousness among rural dwellers (Omotoriogun, 2019).

Bird species categorised as endangered by the International Union for the Conservation of Nature (IUCN) RedList in Cross River State have been observed to continue to face different forms of threats, namely: habitat loss, degradation, fragmentation, logging, hunting, bush burning, wildlife trade, and overgrazing. Also other ethno-practices faced by threatened bird species include the use of feathers, wings, head, and legs for rituals, chief Tency coronation, burial right, and festival have been reported contribute to the decline in the population of this species (Hooded Vulture *Necrosyrtes monachus* (Critically Endangered **CR**), White-backed Vulture *Gyps africanus* (Critically Endangered **CR**), Grey Parrot *Psittacus erithacus* (Endangered **EN**), Yellow Casqued Hornbill *Ceratogymna elata* (Vulnerable **VU**), Bannermans Weaver *Ploceus bannermani*, (Vulnerable **VU**), Green-Breasted Bush-shrike *Malaconotus gladiator* (Vulnerable **VU**) Mount Kupe Bush-shrike *Chlorophoneus kupeensis* (Vulnerable **VU**) White-Throated Mountain-Babbler *Kupeornis gilberti* (Vulnerable **VU**).

Birds perform many rituals, as is seen in ritual meals like Thanksgiving, cleansing, sacrifices, and festivals, where birds are prominently featured (Gardella & Krute, 2024). This results in increasing demand for some bird species and their parts, such as vultures, hornbills and parrots (Asso et al., 2024; Manqele et al., 2023). In reported cases, the uses of birds parts such as Hooded Vulture for rituals has fail as instruments for the conservation of bird species in communities and Nigeria where traditional belief (rituals) systems are not recognised by heterogeneous communities (Manja 2026). However, conservation thrives in other communities where it is reported to be effective among ethnic groups and Indigenous people, and rituals are reported to be effective and adhered to by community members in heterogeneous societies (Barshep 2017). According to Ihinmikaye et al., (2022), Believers and nonbelievers alike, for fear of retribution by the spirits, still respect and obey these rituals, taboos, and their related myths. Although sacred forests where ritual right are sometimes are not meant for biodiversity conservation, they offer opportunities to be integrated into global conservation targets of "30x30" and "HalfEarth" by 2030 (Landim et al., 2024).

Indigenous peoples have accumulated knowledge for many generations about their interactions and relationships with the bird species (Tidemann & Gosler, 2012). Therefore, the inclusion of

traditional ecological knowledge and other indigenous variables, such as rituals, and Community-based conservation initiatives in modern conservation approaches (such as the One Plan Conservation and Alliance for Zero Extinction approach) may be one of the most effective approaches in the conservation of threatened bird species namely Hooded Vulture, African Grey Parrot, Yellow-casqued Hornbill among others. Pursuing the understanding that local communities are inextricably connected to birds and use the forest resources which include birds for ritual healing, food, medicine, and cultural values among other interactions; therefore, requires empirical data and a more comprehensive understanding of the strategies that will strengthen rural communities and traditional people knowledge on birds, while integrating community-based organisations and technical capabilities of rural communities as well as adopting rituals that are not inimical to birds but contribute to sustainable conservation of threatened birds species in Cross River State.

The gap in empirical data on rituals of ethnic groups and indigenous peoples in Cross River State on human-bird interaction has been observed to be an integral part of the survival of indigenous people in Cross River State while interacting with birds. This has also been observed to be one of the major causes of bird population decline. Hence, understanding the relationships between ethnic groups and birds, especially birds of global conservation concern and their influence on the conservation of bird species. Therefore, it is critical to obtain empirical data on indigenous people rituals and the conservation of threatened bird species in Cross River State to understand the relationships between indigenous people rituals and conservation of threatened bird species among ethnic groups in Cross River State and their relationship to the conservation of birds of global conservation concern.

Statement of the problem

Bird species have been observed to be classified as major indicators of the increasing changes in the environment. In Nigeria, it is documented that about 920 bird species have been recorded (Tende et al., 2024). Interestingly, these species play critical roles in the environment, acting as major indicators of habitat change and condition, seasonality change (wet and dry) via migration, and migration pattern, or general environmental changes. Bird species play the role of free and cost-effective pollinators, pest and disease control agents, seed dispersers and reafforestation specialists as well as a source of income through bird watching and eco-tourism. Species such as the Critically Endangered Hooded Vulture, White-backed Vulture *Gyps africanus* and Pied Crow *Corvus albus*, among other scavengers, also serve as free sanitation officers and cleaners feeding on dead animals and remains of animals in slaughterhouses, crushed insects and other animals by moving cars, hence, get rid of potential vectors and disease breeding grounds.

Despite these important roles played by bird species, there has been a reported increase in their persecution as well as their use for numerous purposes by the diverse ethnic groups in Cross River State. These persecutions range from unsustainable traditional uses as sources of food and protein, exploitation of their parts as adornment, decorative accessories during new yam festivals, among others, Chief Tency coronation, and traditional medicine (Alves et al., 2013) resulting in the decline of the avian population and consequently location extinct (extinction). Also, trafficking in their parts, habitat loss, degradation, fragmentation, and pollution are other factors observed to be causes of avian (bird) species decline in Cross River State.

With the decline in the population of this species across the globe, government and non-governmental organisations have developed different modern conservation strategies, with some being observed to be effective in the conservation of bird species such as Hooded Vulture, African Grey Parrot, Yellow-casqued Hornbill, Green-Breasted Bushshrike, Mount Kupe Bushshrike, White-throated Mountain-Babbler, Bannerman's Weaver, amongst others. This approach or strategy includes the designation of some sites as bird sanctuaries, nature reserves, and national parks which are also known as important bird and key biodiversity areas, biosphere reserve, Ramsar sites, world heritage sites, botanical gardens, provision of socioeconomic activities in the form of alternative livelihoods, breeding programs, the establishment of zoos and the use of conservation education to create the needed awareness on globally threatened bird species. Interestingly, other possible remedies may include concerted efforts towards the implementation and ratification of treaties and conventions on biodiversity and educating the populace to forgo cultural practices that are inimical to the conservation of bird species (Bc, 2020)

As a result, in Cross River State, modern birds conservation strategies such as the establishment of bird sanctuaries, community forest reserves, state government nature reserves and national parks

such as Afi Mountain Wildlife Sanctuary (AMWS), Cross River National Park (CRNP), Mbe Mountain (MM), Becheve Nature Reserve (BNR), Ekuri Forest Reserve (EFR), Iko Esai Community Forest (IECF), among others as well as conservation education, awareness and establishment of citizen projects has been regarded as modern measures or strategies put in place to conserve the remaining birds species and this have yielded some positive result but with increasing observed pressure on birds' species by indigenous people in rural communities and ethnic groups in Cross River State.

It has also been observed that there are over 10 major ethnic groups and languages in Cross River State, namely: Efik, Ejagham, Ekio, Bekwara, Bette, Yala, Ukelle, Mbembe, Bakor, Nkim, Nkum, and Ekajuk. Other ethnic groups and languages include Qua and Yakurr. These ethnic groups are diverse in their traditional rituals and cultural practices which contribute to the conservation of some bird species and the decline in the population of others within rural communities. While some ethnic groups' rituals have positive effects on some bird species and promote their conservation, others' rituals have negative effects on bird species and contribute to the decline in their population. Therefore, providing answers to the following questions as to what bird species are used for ritual purposes among ethnic groups? and what species predicts the conservation of threatened bird species becomes paramount?

Purpose of the study

The main purpose of this study was to determine the relationship between indigenous people rituals and conservation of threatened bird species among ethnic groups in Cross River State. Specifically, the research aims to:

1. determine what relationship exists between indigenous people rituals and the conservation of threatened bird species?

Research Questions

To achieve the specific objective of this study, the following research question was formulated to guide the study:

1. To what extent does indigenous people rituals predict the conservation of threatened bird species among ethnic groups in Cross River State?

Statement of hypotheses

The following hypothesis was formulated to guide the study:

1. Indigenous people rituals do not significantly predict the conservation of threatened bird species among ethnic groups in Cross River State

LITERATURE REVIEW

Indigenous people's rituals and conservation of bird species

There is increased awareness of the integration of ritual practices and indigenous people's knowledge into modern conservation strategies to promote the sustainable conservation of birds and their habitat. Related studies have indicated that both traditional practices can be fused with a scientific approach to enhance conservation approaches, especially in designing environmental education programs. Birds account for the highest proportion of species utilised for rituals and traditional medicine (Acharya et al., 2025). Ritual serves more than just a religious practice, becoming a powerful means of fostering environmental consciousness and preserving local heritage (Prasetyo, 2023). Supernatural beliefs, such as forbidden areas and tabooed species, may function as a resource management tool (Busch et al., 2020). Similarly, the preservation of ethnoornithological rituals and the education of the younger generation on rituals about bird species can be sustained in and around the culture of Riau society. The practice of ritual is evident in the culture of villages in Riau, Province, Indonesia (Elfis et al., 2020).

Elfis, study shows that certain bird species are central to local culture, as symbols, used in traditional medicine and rituals, with Helmeted Hornbill body parts are used in treatment to cure various diseases by the TalangMamak Tribe Rantau Langsat. And thus, their conservation is linked to the preservation of ethno-ornithological practices. In Pakistan, Muslim shrines where devotees believe saints are buried, and they have deep respect for the birds, animals and tree species residing within the shrine premises (Qasim et al., 2022). The devotees believe that harming these animal and plant species, in turn hurts their own lives negatively. They believe that caring for and protecting them will increase their happiness and livelihood success (Qasim et al., 2022). This highlights the intricate relationship between cultural practices, religious beliefs, and biodiversity conservation, emphasising the potential for integrating traditional knowledge into conservation strategies.

Manqele et al. (2023) investigated the ethnomedicinal use of vultures by traditional health practitioners in KwaZulu-Natal, South Africa. Investigated traditional health practitioners' ethnomedicinal use of vultures in KwaZulu-Natal, South Africa. In-depth interviews were conducted with 26 traditional health practitioners from two district municipalities. The Data collected were analysed through qualitative and quantitative methodologies. They documented seven parts of the vulture used for rituals that traditional health practitioners used in KwaZulu-Natal. When the Use Value (UV) index was calculated for each part, the head obtained the highest (0.92). Consensus on parts and their uses was generally low across the study group. Of the 21 uses reported for vulture parts, 71% were spiritually based. The participants were aware of the hunting of vultures through the use of poison, but demonstrated different views about the risks associated with using such material. Overall, the findings confirm the increasing use of African vultures in traditional medicine. Raising awareness and upscaling the active involvement of traditional health practitioners in alternative use and natural resource management may benefit vulture conservation and that of other species commonly used in ritual-based practices.

Furthermore, Rambey et al., (2021) undertook a study to determine the animals used by the Batak Toba tribe in Bahal Gajah Village, Simalungun Regency, North Sumatra. The team utilised the snowball sampling method through interviews with key informants in the community. The data taken includes the types of animals used and their specific uses of animals. The data obtained from the interviews were tabulated and then discussed descriptively. The results indicate that the number of animals used by the Batak Toba Tribe in Bahal Gajah Village is 20 species of animals, the utilisation of which includes 14 animals for consumption, 7 types of animals for medicine, and 4 types of animals for rituals. Based on class 6 classes, namely mammals, reptiles, aves, molluscs, pisces and amphibians.

The reviews clearly showed that both plants and animals are highly demanded for mystical or ritual purposes across the study areas, revealing the ritual practices; however, they are major causes of the rapid decline in the population of fauna and flora, most especially birds in the study area.

STUDY AREA/RESEARCH METHODOLOGY

Cross River State is located in South-east Nigeria. The state lies between Latitude 05° 045'N and longitude 08° 030'E. It covers a total area of approximately 20,156 km² (7,782sqm²). The state shares an international boundary with the Republic of Cameroon to the East, Benue state to the North, Ebonyi and Abia states to the West, and the South, Akwa Ibom and the Atlantic Ocean. This study was conducted in the three educational zones of Cross River State. The 2025 projected population of the state stands at 5,253,133 at a growth rate of 3.0%, National Population Commission (2025). The climatic conditions and biodiversity of the state differ relatively between the different local governments and locations as one moves from North to South of the state. However, the average temperature range is between 15°C and 30°C, with the Obudu Plateau having the lowest record of temperature at 4°C- 10°C during wet seasons of the year, with the plateau having some areas rising to an altitude of 1802m above sea level (a.s.l). Annual rainfall is reported to be 3306mm.

The state is known globally for its high biological diversity with the highest concentration of threatened and endemic fauna and flora, including the critically endangered Cross River Gorilla, Nigeria-Cameroon Chimpanzee, Drill Monkeys, Preuss's Monkey, Mount Kupe Bushrike, Green-breasted Bushshrike, White-throated Babbler, Green-Breasted Bushshrike, Yellow Casquet Hornbill, Bannerman's Weaver, Grey Parrot, Hooded Vulture, White-Bellied Pangolin among others endemic and threatened plant species, butterflies' dragonflies and damselflies, reptiles, and amphibians and a host of migratory birds species reported in the state.

The Correlational survey research design was adopted for this study, which comprises a review of documented research, observations, and discussions. This research design allows the researcher to use structured, semi-structured, and open-ended questionnaires. Survey research design also allows the researcher to use focus group discussions and key informant interviews as instruments for data collection (Dangal, 2021, & Mills, 2024). This survey design also allows the researcher to collect structured data from individuals or groups to gain deeper insight into their thoughts, behaviours, or experiences related to a specific problem, making it a versatile tool in both quantitative and qualitative research (Mills 2024). And draw inferences about the characteristics of the required population from the sample, which is generalised on the population.

Multistage Sampling procedures were adopted to obtain a sample for this study. This included stratified, purposive, simple random, and accidental sampling techniques. Stratified sampling was employed to categorise local governments based on education zones and local government within protected and coastal areas in Cross River State. As well as enclave and buffer zone communities around the protected areas based on ethnic groups. Purposive sampling was adopted to select ethnic groups in each of the selected Local Government areas around protected and coastal areas. Simple random sampling was utilised to select three rural communities from the four local governments (Akamkpa, Bakassi, Boki and Obanliku), while two were selected from the Bakassi local government area, culminating in a total of eleven (11) communities and eight (8) ethnic groups for this study. Additionally, accidental sampling technique was applied to administer the questionnaire titled: Rituals and Conservation of Bird Species Questionnaire (RCBQ) to the indigenous people across the ethnic groups who served as respondents to this research.

The population comprises of 513,896 adults in the four (4) selected local government areas. This study sampled a total of 731 respondents selected from each of the selected buffer zone communities who were adults and 15 years above and members of the ethnic groups who are residing in the communities and were available and willing to respond. The respondents include village heads, community leaders, traditional knowledge holders, farmers, hunters, traders, public savants, and loggers. The sample size was determined with reference to Conroy (2021) guidelines standard rules of thumb for sample size for infinite and finite population and precision in survey research, which established that for larger population, a sample size of approximately 384 provides $\pm 5\%$ precision at 95% of confidence for proportion estimates Conroy (2021) by the guidelines and rules of thumb for correlational survey research design. The sample size achieved of 731 exceeded the recommended threshold of 384. The sample size achieved for this study exceeds this threshold, affording greater precision and statistical power for correlation studies and regression analyses.

The major instrument designed for data collection for this study was a Likert-type questionnaire titled: Indigenous people rituals and Conservation of Birds' Questionnaire (RCBQ). The instrument was designed on a four-point Likert-type questionnaire of Strongly Agree (SA), Agree (A), Strongly Disagree (SD), and Disagree (D). The RCBQ was designed in sections. Section A was designed to capture respondents' demographic variables, Section B captured data on the independent variable (indigenous people rituals 10 items), while Section C. captured data on the dependent variable on conservation of birds with 10 items from respondents respectively.

The researcher adopted various methods in data collection for this study. The Indigenous people rituals and Conservation of Birds Questionnaire (RCBQ) was produced and administered to adults from the 11 enclave and buffer zone communities who have lived in the selected communities in the selected four (4) local government areas with protected and coastal areas in Cross River State. The researcher briefly discussed the purpose of the study with community leaders and respondents to seek their consent and what was expected from respondents in turn.

The researcher used one day in each of the selected communities to train the 11 volunteer field assistants in each of the 11 (eleven) communities selected, who are indigenous people with good knowledge of the local language and culture of the ethnic group in the study area. Community leaders, youth leaders, and other knowledgeable indigenous people in the selected communities assisted in the identification of fellow respondents to whom the researcher administered the questionnaires. The researcher then proceeded to administer the RCBQ himself with the help of the trained research assistant, who assisted in interpreting the content of the questionnaire to the respondents with their responses to the items during the interview and assisted in addressing all issues regarding administering the questionnaire and key informant interview that arose during the process of data collection. The researcher then adopted pictures and sounds from the Merlin Bird ID by Cornell Lab, version 3.10.1, Field Guide for the Birds Africa version 1.25 Application and printed pictures of the target species were shown to the respondent for identification and to elicit further information from the respondents.

The instrument for data collection was an RCBQ developed on a 4 (four) point Likert scale. Coding techniques were adopted. Section "A" of the instrument focused on respondent demographic data, Section B dealt with independent variables (Rituals). Section C focused on the dependent variable conservation of threatened birds. All positively worded items were coded based on Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2, Strongly Disagree (SD) = 1, while all negatively worded items were coded in a manner viz: Strongly Agree (SA) = 1, Agree (A) = 2, Disagree (D) = 3, Strongly

Disagree (SD) = 4. All the responses were coded into Microsoft Excel 365 version package, and the total scores for all the items in each section were used as the respondents' scores on that variable. Descriptive statistics were used to answer the research question while linear Regression analysis was employed to test the hypotheses. The research hypothesis for this study was tested using Statistical Package for the Social Science (SPSS) software package 27.3.1. The hypotheses were tested at a significance level set at 0.05.

RESULTS AND DISCUSSION OF FINDINGS

Presentation of results

The results presentation deals specifically with the research questions and hypotheses in the study, analysed using percentages from the descriptive analysis and results from the simple linear regression conducted.

Research question

To what extent do indigenous people rituals influence the conservation of threatened bird species among ethnic groups in Cross River State?

The descriptive analysis was adopted to answer the research question. The research question was answered to measure the extent of agreement and disagreement with the extent to which bird rituals predict the conservation of threatened bird species. The responses of respondents were further summed up with Strongly Agree and Agree presented as agree, while respondents' responses for Disagree and Strongly Disagree were also summed up and presented as disagree, as presented in Table 1. The results of the analysis presented in Table 1: show that 300 respondents representing 41.0% agree that ritual practices related to birds are no longer practised by my people, and 431 respondents representing 59.0% disagree. 438 respondents representing 59.9% agree that birds are used as healing rituals in my community, while 293 respondents representing 40.1% disagree. 451 respondents representing 61.7% agree that Men are responsible for performing bird-related rituals in my community, while 280 respondents representing 38.3% disagree. 192 respondents representing 26.3%, of women are responsible for performing bird-related rituals in my community. 539 respondents representing 73.7% disagree. 185 respondents representing 25.3% of the sample agree that Hooded Vultures are hunted for mystical purposes in my community. 545 respondents representing 74.6 disagree. 389 respondents representing 53.2% agree that Yellow Casqued Hornbill body parts are used for traditional medicine, and 342 respondents representing 46.8% disagree. 513 respondents representing 70.2% agree that African Grey Parrots are hunted for their body parts in my community for their magical power. 218 respondents representing 29.8% disagree, while 427 respondents representing 58.4% agree that in my community, we use birds' body parts for spiritual powers, while 304 respondents representing 41.6% disagree.

The result of the descriptive analysis, on the other hand, revealed that there are other birds with magical powers in your community apart from the three mentioned above, the also result showed that 228 respondents representing 31% said YES, 493 respondents representing 67.4 said NO, and 10 respondents representing 1.4% said No Answer. 97 respondents representing 13.3% mentioned Eagle, 69 respondents representing 9.4% mentioned Guinea Turaco (*Tauraco persa*), 1 respondents representing .1% said swallows (*Hirundinidae*), 12 respondents representing 1.6% said Standard-winged Nightjar (*Caprimulgus longipennis*), 2 respondents representing .3% said Owls and Guinea turaco, 5 respondents representing .7% said Senegal coucal (*Centropus senegalensis*), 31 respondents representing 4.2% said Owls, 1 respondents representing .1% said Great Blue Turaco and Guinea Turaco, 13 respondents representing 1.8% said Palm-nut Vulture (*Gypohierax angolensis*), 1 respondents representing .1% said Woodland Kingfisher (*Halcyon senegalensis*) 1 respondents representing .1 % said White-crested Hornbill (*Tigriornis leucolopha*) 498 respondents representing 68.1% said No Answer.

TABLE 1

Summary of descriptive analysis on ritual and the conservation of threatened bird species

S/N	Item	n	Agree (%)	Disagree (%)	Remark
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1. Ritual practices related to birds are no longer practised by my people	731	300(41.0)	431(59.0)	Agree
1. Birds are used as healing rituals in my community	731	438(59.9)	293 (40.1)	Agree
2. Men are responsible for performing bird-related rituals in my community	731	451(61.7)	280(38.3)	Agree
3. Women are responsible for performing bird-related rituals in my community	731	192(26.3)	539(73.7)	Agree
4. Hooded Vultures are hunted for mystical purposes in my community	731	185(25.3)	545(74.6)	Disagree
5. Yellow Casqued Hornbill body parts are used for traditional medicine	731	389(53.2)	342(46.8)	Disagree
6. African Grey Parrot is hunted for their body parts in my community for their magical power	731	513(70.2)	218(29.8)	Disagree
7. In my community, we use birds' body parts for spiritual powers	731	427(58.4)	304(41.6)	Disagree

Source: researcher field work 2026

Research hypothesis

Indigenous people rituals do not significantly predict the conservation of threatened bird species among ethnic groups in Cross River State

The results of the analyses in Table 2 and figure 1: show a calculated f -ratio of 12.519 at a p -value less than .001 ($p < .001$). Since the p -value is also less than .05 the null hypothesis is rejected. This means that bird rituals significantly predict the conservation of threatened bird species among ethnic groups in Cross River State. The result further shows a correlation coefficient, measuring the strength of association between the independent (rituals) and dependent (conservation of bird species) variables (r) of .130, and coefficient of determination (Adjusted r^2) of .016. This evidence shows the extent to which the variation of the dependent variable about its meaning is explained by the independent variable. It means that 1.6% of the variation in rituals was as a result of variation in the ritual of the ethnic groups, while the other 98.4% ($1-r^2$) could be as a result of variables extraneous to the study.

The test of significance using the t -statistics ($t=3.538$) shows significance at a p -value less than .001 ($p < .001$), confirming that rituals significantly predict conservation of threatened bird species in the study area. The standardised coefficient (Beta) of .130 shows a positive relationship between rituals and conservation of threatened bird species.

TABLE 2

Summary of regression analysis for the relationship between indigenous people rituals and the conservation of birds

Source of variation	ss	df	ms	f	p -value
Regression	320.4111		320.4111	12.519	<.001
Residual	18658.089	729	25.594		
Total	18978.501	730			

Model	B	Standard error	Beta	t	P-value
Constant	21.792	.831		26.212	<.001
Rituals	.141	.040	.130	3.538	<.001

*significant at .05

$r = .130$

$r^2 = .017$

Adjusted $r^2 = .016$

Source: researcher field work 2026

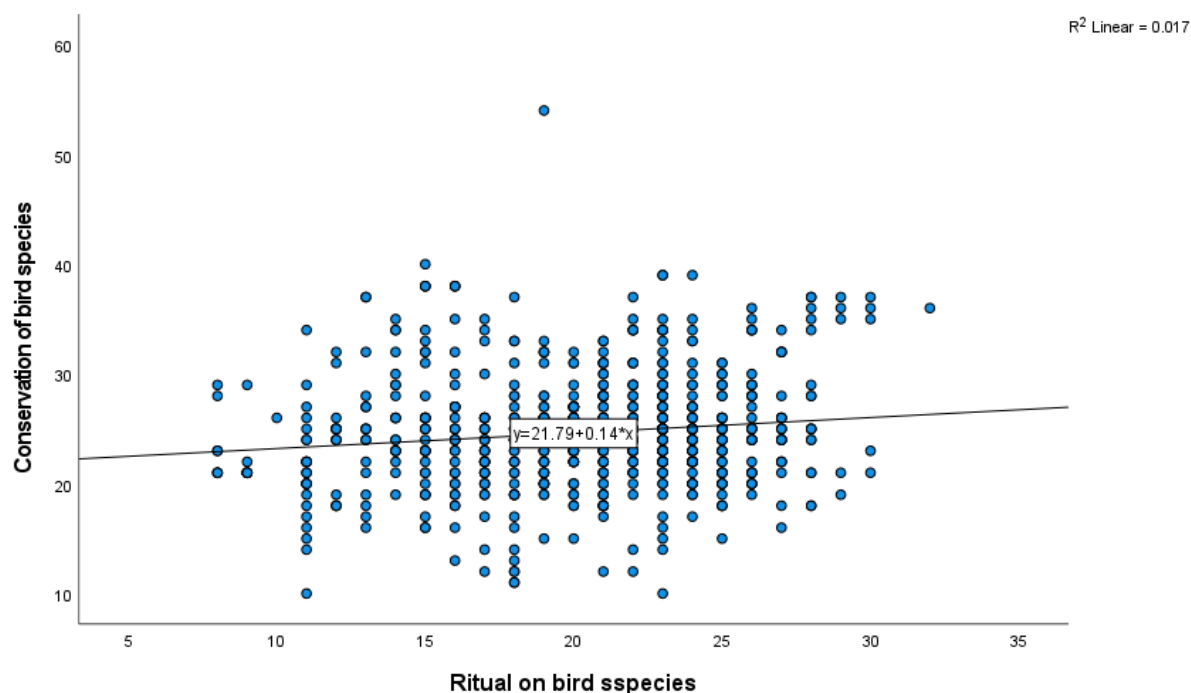


Fig. 1. Scatter plot (simple linear regression graph) showing the relationship between rituals and conservation of threatened bird species in the study area. The solid line shows the simple linear regression trend of the relationship.

The results of the analysis on hypothesis, on indigenous people rituals, do not significantly predict the conservation of threatened bird species among ethnic groups in Cross River State, as presented in Table 2 and figure 1: the results evidence that indigenous people rituals significantly predict conservation of threatened bird species in the study area and the standardised coefficient shows a positive relationship between indigenous people rituals and conservation of threatened bird species.

The study further reveals presented in Table 1: show that (i) ritual practices related to birds are still practised by local people among ethnic groups in Cross River State; (ii) birds are used as healing rituals in my community among the ethnic groups in the study; (iii) that Men are responsible for performing bird-related rituals in my community, (iv) evidence that Hooded Vultures are not hunted for mystical purposes in my community (v) Yellow -casqued Hornbill body parts are used for traditional medicine; (vi) African Grey Parrot are hunted for their body parts in my community for their magical power. (vii) body parts of birds' are used for spiritual powers in the study area, (viii) there are no other bird species with magical powers in your community, However, a few species were mentioned by respondents that are believed to be birds with magical powers in the study area, namely: Eagle, Guinea Turaco (*Tauraco persa*), swallows (*Hirundinidae*), Standard-winged Nightjar (*Caprimulgus longipennis*), Owls, Senegal coucal (*Centropus senegalensis*), Great Blue Turaco, Palm-nut Vulture (*Gypohierax angolensis*), Woodland Kingfisher (*Halcyon senegalensis*), White-crested Hornbill (*Tigriornis leucolopha*), respectively.

This may be because community members in all the communities confirm that the head, legs and feathers of birds are used for traditional medicine, stating that the feathers of the Yellow-casqued Hornbill are burnt and mixed with charcoal and palm cannell oil for the treatment of cough in children and adults. It was also confirmed during an interaction with community leaders, Iko Esai, and Ekong-Anaku, that hunting of the African Grey Parrot is not carried out by indigenous people (community members); however, it is done by non-indigenes with permission and support from the local authorities. The emphasis that the hunting is done using another African Grey Parrot (pet) in captivity. They recount that half wood attached to a fruited tree that Grey Parrot forages on and a sticky substance is rubbed on the branches of the fruiting tree so that when the caged Grey Parrot Calls the wild one will respond and when the wild Grey Parrot fly in and perched on the branches with the sticky gum, they will get stocked to it there by trap them.

The findings of this study agree with the findings of Manqele et al., (2023), whose study revealed that participants in the study were aware of the hunting of vultures through the use of poison, but demonstrated different views about the risks associated with using such material. They further confirm the increasing use of African vultures in traditional medicine. Hence, the need to recommend raising awareness and upscaling active involvement of traditional health practitioners in alternative use and natural resource management may benefit vulture conservation and other bird species commonly used in ritual-based practices.

Although locals do not hunt Hooded Vulture and Grey Parrot for magical power but state that these species are mainly hunted by non-indigenous people from the communities. This confirms the threats faced by the species and the serious consequences it has on the already declining population.

This is because their body parts (head, wing, feather, legs, and egg) are used for magical purposes, such as wrestling, fast-tracking success, while others are believed to invoke death. Respondents further specified that the wings and feathers of an Eagle can be used to add additional strength to the brave. They also revealed that also that the tree an eagle perched on are also considered to be special trees, while the red feathers of Guinea Turaco and that of White-crested Hornbill and Great Blue Turaco are also considered to possess power and are only used on the cap of the brave men who had killed key stone species such Elephant, Gorilla, Tigar, Leopard Chimpanzee and Buffalo, similarly the report that swallow and Standard-winged Nightjar are used for wrestling, they expressed that Owl are associated with death and were report to be capable of bring death, while White-Crested Hornbill feather has the magical power of dance performance among Dusang Iyoun-young ethnic group of Akamkpa. This finding is supported by the findings of Gardella & Krute, (2024), who revealed that People have copied many bird rituals, such as the Hadza, whose dances involve the calls they make to honeyguide birds that find beehives to share with humans.

The findings further indicate that this is seen in ritual meals like Thanksgiving and Christmas, which commonly feature birds. This finding further agrees with the findings of Asso et al., (2024), who reported that the use of Vultures or parts of vultures by the populations surrounding the Comoe National Park for traditional medicine, mystic practices, consumption as food, and cultural heritage were also highlighted as real threats to these organisms. And the vulture parts commonly used in this area are feathers, legs, head, heart, stomach, brain and excrement. They concluded that Hooded Vulture (*Necrosyrtes monachus*) appears to be the most sought-after species and the most widely used for these practices in the study area. Similarly, the finding agrees with (Yuniati et al., 2020) Yuniati, whose research result revealed that some body parts and products of animals are believed to have magical value, such as fur, sound, and the whole body. The result also demonstrates that animal parts used in rituals and various traditions include eggs, heads, horns, blood, flesh, and the whole body.

CONCLUSION AND RECOMMENDATIONS

Conclusion

Based on the findings of this study, the following conclusion was reached that indigenous people rituals significantly predict the conservation of bird species among ethnic groups in Cross Rivers State, Nigeria.

Recommendation

Based on this result and the findings of this study, the following recommendations were made:

1. Indigenous people's rituals on bird species should be integrated into conservation programme ensuring community participation. Curriculum developers also should incorporate local myths on birds and other species in the design of the curriculum for environmental education.
2. Donor agencies, government, conservation educationists, and ornithologists should recognise the significance of bird species in the culture of ethnic groups by ensuring that conservation projects regarding threatened species should also focus on addressing negative ethno practices, as well as encouraging and promoting positive ethno beliefs that support species survival
3. Conservation education programmes should integrate rituals into awareness programmes in schools as efforts to enhance the involvement of the younger generation in key conservation activities. This could be achieved by adopting storytelling and involving traditional knowledge holders in documenting folklore. Researchers, government, and environmental educationists should develop a digital database for the documentation and sharing of local folklore and names of bird species and other taxa among the ethnic groups, students/pupils, which will serve as a strategy to prevent the extinction of traditional knowledge on species, promote and preserve culture, while connecting humans and nature
4. Plant-based material as sustainable alternative options for rituals should be initiated by protected area managers, Community-based organisations, donors, Government, and researchers, to reduce the use of bird parts among ethnic groups to stop harmful practices targeted at birds for traditional medicine, protein, and materials for festival celebrations, and the coronation of chief.

REFERENCES

- Acharya, R., Das, S. K., Bhowal, A., & Sen, K. (2025). Healing from the wild: An ethnozoological exploration of animal-based medicine in Jhargram, West Bengal, India. *Journal of Ethnobiology and Ethnomedicine*, 21(1), 32. <https://doi.org/10.1186/s13002-025-00760-w>
- Alves, R. R. N., Leite, R. C. L., Souto, W. M. S., Bezerra, D. M. M., & Loures-Ribeiro, A. (2013). Ethno-ornithology and conservation of wild birds in the semi-arid Caatinga of northeastern Brazil. *Journal of Ethnobiology and Ethnomedicine*, 9(1), 14. <https://doi.org/10.1186/1746-4269-9-14>
- Aso, A. A., Koné, N. A., & Salewski, V. (2024). Cultural attitudes and human pressure towards vultures around the Comoé National Park, Côte d'Ivoire (West Africa). *Journal of Ethnobiology and Ethnomedicine*, 20(1), 30. <https://doi.org/10.1186/s13002-024-00657-0>
- Bc, A. (2020). Biodiversity Conservation in Nigeria: Perception, Challenges and Possible Remedies. *Current Investigations in Agriculture and Current Research*, 8(4). <https://doi.org/10.32474/CIACR.2020.08.000293>
- Busch, J. T. A., Watson-Jones, R. E., & Legare, C. H. (2020). Cultural Variation in the Development of Beliefs About Conservation. *Cognitive Science*, 44(10), Article e12909. <https://doi.org/10.1111/cogs.12909>
- Chaachouay, N., & Zidane, L. (2023). The importance of animals in sacrificial rituals and socio-religious occasions practised by the indigenous communities of Morocco and strategies to conserve them from extinction. *Biologia*, 79, 753–773. <https://doi.org/10.1007/s11756-023-01548-7>
- Elfis, Titisari, P. W., Nunut Suharni, Khairani, Nadiatul Janna, Tika Permatasari, & Indry Chahyana. (2020). Ethnoornithological study in selected villages of Riau Province, Indonesia. *Biodiversitas Journal of Biological Diversity*, 21(4). <https://doi.org/10.13057/biodiv/d210445>
- Ihinmikaiye, S. O., Ochekwu, E. B., & Ojo, V. I. (2022). The use of myths and taboos in wildlife conservation: The case of Bayelsa-East Senatorial District of Nigeria. *Zoologist (The)*, 20(1), 141–149. <https://doi.org/10.4314/tzool.v20i1.18>
- Landim, A. S., De Menezes Souza, J., Braz Dos Santos, L., Machado De Freitas Lins-Neto, E., Tenório Da Silva, D., & Ferreira, F. S. (2024). How do cultural factors influence the attitudes of human

- populations protecting fauna? A systematic review. *Journal for Nature Conservation*, 79, 126605. <https://doi.org/10.1016/j.jnc.2024.126605>
- Manqele, N. S., Selier, S. A. J., & Downs, C. T. (2023). The ethnomedicinal use of vultures by traditional health practitioners in KwaZulu-Natal, South Africa. *Journal of Ornithology*, 164(4), 777–788. <https://doi.org/10.1007/s10336-023-02076-6>
- Omotoriogun, T. (2019). Ornithology and Conservation activities in Elizade University: Promoting bird and habitat conservation in Nigeria. *ResearchGate*, 1, 234-240.
- Pam, G. A.-B., Zeitlyn, D., & Gosler, A. (2018). Ethno-Ornithology of the Mushere of Nigeria: Children's Knowledge and Perceptions of Birds. *Ethnobiology Letters*, 9(2), 48–64. <https://doi.org/10.14237/eb1.9.2.2018.931>
- Prasetyo, S. F. (2023). Harmony of Nature and Culture: Symbolism and Environmental Education in Ritual. *Journal of Contemporary Rituals and Traditions*, 1(2), 67–76. <https://doi.org/10.15575/jcrt.361>
- Qasim, S., Qasim, M., Shrestha, R. P., & Hassan, A. (2022). The role of religious beliefs in the conservation of biodiversity in the holy shrines of Pakistan. *Biodiversity*, 23(3–4), 159–163. <https://doi.org/10.1080/14888386.2022.2150312>
- Rambey, R., Siringo-Ringo, P., Buana, B. Y., Wiranata, D., & Prayoga, B. (2021). Ethnozoology by Batak Toba Tribe in Bahal Gajah Village, Simalungun Regency, North Sumatera, Indonesia. *IOP Conference Series: Earth and Environmental Science*, 782(3), Article 032012. <https://doi.org/10.1088/1755-1315/782/3/032012>
- Tende, T., Iniunam, I. A., Ivande, S. T., Awoyemi, A. G., Danmallam, B. A., Ringim, A. S., Bako, L. A., Ramzy, F. J., Kazeh, N. W., Izang, A. I., Kumdet, P. S., Ibrahim, J. I., Haruna, M. A., Eyos, K., Iki, E. D., Chaskda, A. A., & Ottosson, U. (2024). Citizen science mitigates the lack of distributional data on Nigerian birds. *Ecology and Evolution*, 14(4), Article e11280. <https://doi.org/10.1002/ece3.11280>
- Tidemann, S. C., & Gosler, A. (Eds). (2012). *Ethno-Ornithology: Birds, Indigenous People, Culture and Society*. Earthscan. Routledge. <https://doi.org/10.4324/9781849774758>
- Yuniati, E., Serafinah Indriyani, Jati Batoro, & Y. Purwanto. (2020). Ethnozoology of the ritual and magic of the To Bada Ethnic Group in the Lore Lindu Biosphere Reserve, Central Sulawesi, Indonesia. *Biodiversitas Journal of Biological Diversity*, 21(6). <https://doi.org/10.13057/biodiv/d210636>