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## Forest Governance Approaches for Conservation and Rural Livelihood in Communities of Enugu and Cross River States

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## Abstract

*The study examined forest governance strategies for conservation in selected communities in Enugu and Cross River States, Nigeria. A total of 396 forest-fringe household heads were surveyed using a multi-stage sampling method, focusing on communities within two forest ecosystems characterized by different governance models. Data were collected through structured questionnaires and analysed using percentages, to assess respondents' access to forest resources and perceptions of governance. Findings revealed that the Cross River National Park (CRNP) adopted a zero-encroachment policy—prohibiting hunting (83.0%), logging (70.6%), farming (28.9%), and bush burning (14.4%)—which significantly restricted*

*local access to forest-based livelihoods. In contrast, Enugu State exhibited a near absence of formal forest governance, with no prohibitions or ticketing systems in place, resulting in unchecked exploitation and a heavy dependence on forest resources (35.1% of collected forest products are used regularly). Despite the CRNP's restrictive policies, weak enforcement (resulting in a 0.0% prohibition of unauthorized activities) undermined conservation efforts. The study concluded that exclusionary policies alone are inadequate for sustainable forest management. It recommends that CRNP administrators integrate local communities into decision-making processes, enhance enforcement mechanisms, and develop alternative livelihood options to support both conservation goals and rural well-being.*

## **Introduction**

Forests are vital for both ecological balance and human development, performing essential roles that underpin life on Earth. They serve as habitats for a wide range of plant and animal species, regulate global and local climates, purify the air and water, and store large amounts of carbon, making them crucial for mitigating the effects of climate change (Nansikombi et al., 2020; Sinthumule, 2024). Forests also provide socio-economic benefits by supporting the livelihoods of millions of people who depend on them for fuelwood, medicinal plants, food, construction materials, and income-generating activities (Agube et al., 2021; Onyia et al., 2020). Moreover, forests contribute to water cycle regulation, preventing erosion and sustaining agricultural productivity, especially in communities reliant on subsistence farming. Given these multifaceted roles, the sustainable management of forests is essential for ensuring ecological integrity, biodiversity conservation, and poverty alleviation.

Despite these critical benefits, forests in Nigeria have been subjected to widespread degradation and unsustainable exploitation. Factors such as illegal logging, agricultural encroachment, bush burning, and infrastructural expansion have led to deforestation and biodiversity loss (Oyediji & Adenika, 2022; Yaro et al., 2025). This growing crisis has prompted stakeholders—governments, non-governmental organizations, and local communities—to develop forest governance mechanisms aimed at reversing the trend and promoting conservation efforts. Forest governance refers to the institutional frameworks, rules, and practices that guide decision-making regarding the use of forest resources. These may be formal, such as national laws and policies, or informal, rooted in local traditions and community norms.

This study focused on two distinct forest governance institutions in Southern Nigeria: the Cross River National Park (CRNP), which represents a government-owned and managed forest, and community forests in Enugu State, which operate under community-based management structures. These two models embody different governance philosophies. The CRNP follows a centralized, top-down model with strict enforcement policies, while the Enugu community forests reflect a more participatory, localized approach rooted in communal norms.

The relationship between forest governance and community livelihoods is complex. In many cases, the livelihoods of forest-fringe communities are intricately linked to the natural resources within the forest. Thus, strict conservation policies—such as blanket bans on access and use of forest resources—can jeopardize community welfare and provoke resistance or illegal activities. On the other hand, unregulated access can lead to overexploitation, undermining conservation goals. This tension has made the search for a sustainable and balanced governance model a priority for forest managers and policymakers alike.

One of the persistent challenges facing the National Park Service in Nigeria, particularly in the CRNP, is how to sustain biodiversity conservation while gaining the cooperation and support of local communities (Adetola & Ofuya, 2021; Nchor et al., 2021, 2023). Conservation strategies that alienate communities or disregard their livelihood needs are often ineffective in achieving long-term goals. Thus, integrating local voices into decision-making processes and ensuring that conservation brings tangible benefits to communities is increasingly seen as essential for success. This aligns with the broader concept of conservation and development, where protecting the environment goes hand in hand with improving human well-being.

The theoretical foundation of this study draws on Arts' (2014) "Triple G" perspective of forest governance: government, governance, and governmentality. The first 'G', government, reflects the traditional state-controlled model of forest management, characterized by the imposition of laws and regulations to protect forests viewed as public goods. This approach underpinned the establishment of national parks like the CRNP, aimed at curbing deforestation, controlling forest ownership, and addressing land-use conflicts.

The second 'G', governance, refers to a shift toward collaborative forest management involving a range of stakeholders, including NGOs, international organizations, and local communities. Here, the state acts not as the sole authority but as one among many actors with shared responsibilities in managing forest resources. This multi-actor governance approach recognizes the importance of local knowledge, equitable benefit-sharing, and participatory decision-making in promoting sustainable outcomes.

The third 'G', governmentality, critiques some assumptions of forest governance by highlighting how the state retains control through indirect strategies. It refers to the subtle ways in which the state enables communities to self-regulate while still maintaining overarching influence over forest policies and practices. In Cross River State, for example, initiatives such as REDD+ (Reducing Emissions from Deforestation and Forest Degradation) reflect a form of governmentality—seeking local engagement in conservation while reinforcing state authority over land-use decisions (Amuyou et al., 2021).

Against this conceptual and empirical background, forest governance, whether authoritarian or egalitarian arrangements, shapes how forests are managed, who benefits, and what conservation outcomes are achieved. Effective governance is widely recognized as a precondition for sustainable forest management (Nansikombi et al., 2020), especially in contexts where forest degradation is driven by weak institutional oversight and competing land-use pressures.

This study examined forest governance approaches for conservation in selected communities of Enugu and Cross River States, highlighting the implications for biodiversity protection and the livelihoods of households residing in forest-fringe areas. Specifically, the study described the forest rules governing resource use in CRNP and community forests in Enugu, assessed the frequency of forest resource collection among rural households, and identified the reasons behind harvesting limits in both settings. By comparing these governance models, the study seeks to contribute to policy debates on how to balance ecological conservation with socio-economic development in forest-dependent communities.

## **Methodology**

The study focused on forest-fringe communities in two states of Southern Nigeria: Cross River and Enugu. In Cross River State, the study was conducted in buffer zone communities surrounding the Cross River National Park (CRNP), including areas with community forests and agroforests. Enugu State communities comprised areas with community-managed forests and agroforests. While agroforests exist in both states, this study concentrated solely on forest governance and excluded agroforestry-specific analyses.

Cross River State spans 2,178,700 hectares and has an estimated population of 4,175,020 as of 2020 (Anake et al., 2020; NBS, 2020). The CRNP comprises 105 buffer zone communities—39 in Oban Division and 66 in Okwangwo Division—encompassing enclaves and boundary communities. These communities engage in farming, fishing, and other forest-based livelihoods. Enugu State spans 7,161 km<sup>2</sup> and also features dense forest areas across several local governments (Nwobodo et al., 2025; Ozougwu et al., 2020).

A multistage sampling procedure was employed. In Cross River State, the Oban Division of CRNP was selected for its active interplay between forest governance and rural livelihoods. Seven villages—Obung, Ekong, Nsan, Oban, Aking, Mangor, and Osomba—were randomly selected from the 39 CRNP buffer zone communities. These are collectively referred to as CRNP communities. Household listings were compiled for each selected village/community. In Cross River, a Probability Proportionate to Size (PPS) technique was used to draw 200 household heads: Obung (30), Ekong (27), Nsan (27), Oban (25), Aking (30), Mangor (26), and Osomba (35).

In Enugu State, Enugu North and Enugu East zones were chosen for their dense forest areas. Three LGAs—Nsukka, Igbo-Eze North, and Isi-Uzo—were purposively chosen based on the presence of functioning community forests. Four communities—Eha-Amufu (350), Enugu-Ezike (450), Okpuje (400), and Edem-Ani (500) were selected, and PPS sampling yielded 200 respondents: Eha-Amufu (41), Enugu-Ezike (53), Okpuje (47), and Edem-Ani (59). However, 196 completed and valid questionnaires were analysed in Enugu due to missing or incomplete responses.

Data were collected using structured questionnaires and direct observation and analysed using percentage.

## **Results and Discussion**

### **Forest Rules Guiding Forest Communities**

This study examined the presence and nature of informal forest rules in community-managed forest areas across Cross River and Enugu States. Results indicate a widespread awareness of these rules, though their content and enforcement mechanisms vary across contexts.

In Cross River State, where community forests coexist with the Cross River National Park (CRNP), 94.0% of respondents acknowledged the existence of informal rules governing forest use. As shown in Table 1, the most frequently cited rules include the

confiscation of forest resources obtained illegally (38.8%), the issuance of fines or tickets to defaulters and strangers (23.4%), and the requirement for non-community members to seek permission or obtain a ticket before accessing the forest (14.4%). Other rules include the restriction of land clearing for farming by non-indigenes (12.8%) and prohibitions on unauthorized entry (9.6%).

In Enugu State, where community-based forest governance is practiced independently of any formal national park structure, 87.2% of the respondents reported awareness of informal forest rules. The most prominent among these were prohibitions on unauthorized tree felling (49.7%), and regulations against setting the forest on fire (43.9%). These rules are often embedded in community bylaws, indicating a formalized local consensus around sustainable forest practices.

Informal forest rules in both locations were found to be socially embedded, unwritten, and passed down through communal interactions rather than codified in law. This aligns with the findings of Soliku & Schraml, (2020), that informal rules, such as prohibitions on bushfires and off-season hunting, are critical in managing protected areas. Similarly, Nansikombi et al. (2020) emphasized the importance of empowering local communities to implement forest rules effectively for long-term sustainability.

The findings show two distinct governance models operating in the study areas. In Cross River State, a top-down model dominates, shaped by the presence of CRNP and reinforced by a more formalized structure involving forest guards and enforcement measures. In contrast, Enugu State relies more heavily on community-based governance, where rules are set and enforced by traditional leaders, elders, or forest management committees.

The Cross River communities exhibited a broader range of informal rules, including complex access and resource-use restrictions. These are likely influenced by overlapping governance layers, including CRNP enforcement, community leadership, and conservation NGOs. The requirement for tickets, penalties, and prior permission not only enforces forest protection but also contributes revenue to communities. This supports the findings of Zhao et al. (2022), that informal mechanisms, such as fines and access fees, can serve as effective tools for both conservation and fundraising in rural settings.

In Enugu, the focus on fire prevention and tree harvesting regulation appears to be a response to specific local threats, such as illegal logging and uncontrolled bush burning. Sobeng et al. (2023) highlight similar dynamics, demonstrating that locally driven rules can effectively mitigate forest degradation when embedded in community norms.

Informal rules serve multiple purposes: conservation, community control, and livelihood management. For instance, penalties collected through fines or ticket sales in both states are often reinvested in community development, forest surveillance, or youth employment, illustrating a circular economy approach within forest governance. This dual role of informal rules as both regulatory and economic instruments illustrates how grassroots systems adapt to local conservation and socio-economic needs.

In Cross River, other rules, such as "no logging," "no hunting," and "collection of snails is allowed, but logging is not," reflect a nuanced system of use rights, where certain non-timber forest products (NTFPs) are permissible but more extractive

practices are not. Such distinctions are largely absent in Enugu, where the rules are fewer but strictly enforced due to their integration into the community's bylaws.

The findings also highlight context-specific rules in Enugu, such as prohibitions against sacrificing in streams (15.79%) and defecating in forests (1.17%), indicating broader environmental and cultural considerations in forest use. This highlights how forest governance in community settings extends beyond ecological protection to encompass social norms and spiritual values.

**Table 1: Informal forest rules used**

| <b>Informal Forest Rule</b>                                                                  | <b>Cross River<br/>(n=188)<br/>%</b> | <b>Enugu(<br/>n=171)<br/>%</b> |
|----------------------------------------------------------------------------------------------|--------------------------------------|--------------------------------|
| Confiscation of forest resources illegally sourced from the forest                           | 38.83                                | 13.45                          |
| Payment of fine or issuance of a ticket to forest defaulters and strangers                   | 23.40                                | 18.71                          |
| Strangers must seek permission and obtain a ticket to access the community forest            | 14.36                                | 0.00                           |
| Non-indigenes don't have the right to clear forest land for farming                          | 12.77                                | 0.00                           |
| No illegal entry without permission                                                          | 9.57                                 | 2.92                           |
| The law regarding wood sawing: Do not cut a tree without a permit                            | 8.51                                 | 49.71                          |
| No commercial harvesting of forest resources without obtaining a permit                      | 7.98                                 | 0.00                           |
| No fighting / no quarrelling                                                                 | 7.98                                 | 0.00                           |
| Do not set the forest on fire                                                                | 5.32                                 | 43.86                          |
| No entry                                                                                     | 4.79                                 | 0.00                           |
| Collection of snails is allowed, but logging and hunting are not allowed                     | 4.26                                 | 0.00                           |
| Prohibiting unauthorised activities                                                          | 3.72                                 | 0.00                           |
| No hunting                                                                                   | 2.13                                 | 0.00                           |
| No logging of trees                                                                          | 2.13                                 | 0.00                           |
| A stranger can only clear and farm on the portion of forestland handed to him by an indigene | 2.13                                 | 27.49                          |
| No stealing                                                                                  | 1.06                                 | 0.00                           |
| No use of Gamalin 20 in fishing                                                              | 0.53                                 | 0.58                           |
| Guarding my agroforest                                                                       | 0.53                                 | 0.00                           |
| No sacrifice in the stream                                                                   | 0.00                                 | 15.79                          |
| No defecation inside the forest                                                              | 0.00                                 | 1.17                           |

Note: Multiple responses

### **Description of Formal Forest Rules**

Table 2 shows notable differences in the enforcement and perception of formal forest rules between the CRNP communities in Cross River State and the community forests in Enugu State.

In the CRNP communities, formal forest rules are markedly stricter. A significant majority of respondents identified zero tolerance for hunting (82.99%) and zero tolerance for logging (70.62%) as key regulations. Additional prohibitions reported

include farming (28.87%), bush burning (14.43%), and the use of chemicals in streams during fishing (12.89%). These results suggest a highly regulated forest governance framework with minimal allowance for extractive or agricultural activities, reflecting a strict protection approach.

In contrast, Enugu Forest communities cited more lenient rules. While some formal restrictions were acknowledged, such as no logging (35.23%) and no bush burning (27.98%), there was general acceptance of non-destructive resource use. Many respondents indicated that the collection of firewood, snails, and vegetables is permitted. Other rules in Enugu include restrictions on access for non-indigenes (17.10%) and the requirement for payment before logging activities (10.36%).

Overall, more formal forest rules were reported in the CRNP than in the Enugu communities, indicating a more stringent conservation stance adopted within the national park system. This finding supports that of Nchor et al. (2021), that despite awareness campaigns about biodiversity conservation and wildlife laws within CRNP, illegal resource use persists among rural households. It also aligns with the findings of Adetola and Ofuya (2021), that emphasized the role of wildlife laws as global instruments for biodiversity protection in designated conservation areas.

The contrast in forest governance strategies highlights the distinction between state-led, protectionist models (as in the CRNP) and locally managed, livelihood-sensitive approaches (as seen in Enugu). This variation has implications for both biodiversity outcomes and community relations with conservation authorities.

**Table 2: Description of formal forest rules**

| <b>Formal Forest Rule</b>                                                      | <b>CRNP communities<br/>% (n=197)</b> | <b>Enugu forest communities<br/>% (n=193)</b> |
|--------------------------------------------------------------------------------|---------------------------------------|-----------------------------------------------|
| Zero tolerance for hunting                                                     | 82.99                                 | 0.00                                          |
| Zero tolerance for logging                                                     | 70.62                                 | 0.00                                          |
| Collection of firewood, snails, and vegetables, but zero tolerance for logging | 5.67                                  | 35.23                                         |
| Zero tolerance for farming                                                     | 28.87                                 | 0.00                                          |
| Zero tolerance for bush burning                                                | 14.43                                 | 27.98                                         |
| Non-indigenes are not allowed to access the forest                             | 4.64                                  | 17.10                                         |
| Payment of some amount before logging in                                       | 0.00                                  | 10.36                                         |
| No use of chemicals in the streams during fishing                              | 12.89                                 | 0.00                                          |
| Clearing of the forest path                                                    | 2.58                                  | 9.33                                          |
| No trespassing                                                                 | 3.61                                  | 0.00                                          |
| No harvesting                                                                  | 0.52                                  | 0.00                                          |
| Collection of receipts/tickets                                                 | 0.52                                  | 0.00                                          |

\* Multiple responses

Source: Field survey, 2022

### **Frequency of Forest Resource Collection**

The frequency and pattern of forest resource collection varied according to the different forest governance models. Overall, a high proportion of respondents reported harvesting forest products: 96.0% in Cross River and 99.0% in Enugu.

However, the types of forests and management approaches influenced where and how often collection occurred.

In Cross River State, most resource collection took place in community forests, with 63.5% collecting resources on a regular basis, once a week (58.3%), and as needed (23.8%) (Table 3). In contrast, within CRNP—a protected area with stricter regulations, —67.2% reported no collection of forest products, reflecting strong enforcement of formal rules. Among the few who collected within CRNP, 24.0% did so once a week, suggesting limited and potentially unauthorized access. This aligns with the report of Sinthumule (2024) and Nchor et al. (2021), which highlighted restricted access and prohibitions on logging, hunting, and resource extraction in national parks.

In Enugu State, community forests and agroforestry systems were more accessible. The dominant pattern in community forests was 'as the need arises' (46.9%), followed by 'as regularly as possible' (35.1%). Similar trends were observed in agroforestry areas, with 72.2% collecting regularly and 52.6% as needed. This flexible harvesting schedule highlights the community forests' role in supporting rural livelihoods but raises concerns about sustainability. Frequent and unrestricted harvesting may contribute to long-term forest degradation if not properly managed.

These findings are consistent with those of Nansikombi et al. (2020), that the widespread collection of firewood, charcoal, and farming materials in community-managed forests. Agube et al. (2021) recommended forestry extension training for extension personnel to promote sustainable harvesting and mitigate risks of degradation.

The contrast between strict governance in CRNP and more permissive practices in Enugu underscores the trade-off between biodiversity conservation and livelihood support. While CRNP policies aim to preserve biodiversity through prohibitions, these restrictions can reduce access to vital resources and exacerbate poverty in nearby communities. Meanwhile, the high rate of extraction in Enugu forests, without clear harvesting limits, could accelerate deforestation and biodiversity loss.

The findings also suggest social differentiation in access to resources. In Cross River community forests, indigenous residents faced fewer restrictions than non-indigenes residents, pointing to community-based norms as a regulatory mechanism. Harvesting limits, when effectively enforced, may serve as both conservation tools and livelihood safeguards.

As Sharma et al. (2021) argue, well-defined forest harvesting rules can reduce overexploitation and contribute to sustainable forest use. Without the implementation of silvicultural practices and clear limits on resource extraction, the ongoing dependence on forests in Enugu may become unsustainable.

**Table 3: Frequency of collecting forest products**

| Forest products frequency collection | Cross River  |              |                     | Enugu        |                     |
|--------------------------------------|--------------|--------------|---------------------|--------------|---------------------|
|                                      | ofCF         | CRNP         | Agro                | CF           | Agro                |
|                                      | (n=192)<br>% | (n=192)<br>% | Forest (n=192)<br>% | (n=194)<br>% | Forest (n=194)<br>% |
| Once a week                          | 58.33        | 23.96        | 1.56                | 1.03         | 0.52                |
| As regularly as possible             | 63.54        | 6.25         | 4.17                | 35.05        | 72.16               |
| As the need arises                   | 427.60       | 5.21         | 6.25                | 46.91        | 52.58               |
| Daily                                | 10.94        | 2.08         | 0.00                | 1.03         | 2.06                |
| Twice a month                        | 4.17         | 1.04         | 3.65                | 2.58         | 0.52                |
| No Collection                        | 0.00         | 67.19        | 0.00                | 0.00         | 0.00                |

\*Multiple response; CF= Community forest

Source: Field survey, 2022

### Reasons for Harvesting Limits

Table 4 shows varying reasons for the limits on forest product harvesting. In CRNP communities, the reasons were Park's zero encroachment regulation (18.6%), Park's remoteness and presence of guards (13.1%), limits to prevent overharvesting (10.0%) and collecting only what is sufficient for household use and not for commercial purposes (9.0%).

Other CRNP-specific reasons included being allowed to select only certain non-timber products, such as snails or mushrooms (8.5%), and payment or ticketed access (8.0%). These restrictions align with report of Sharma et al. (2021), that harvesting regulations support forest regeneration, and Sinthumule (2024) stresses the importance of temporal and spatial access controls in protected areas.

In contrast, the reported reasons for forest products harvesting limits in Enugu Forest communities included: No legal limit on the amount harvested (41.5%), resources are freely accessible as community property, although logging is typically excluded (38.5%), do not overharvest (2.6%), and harvesting forest resources that is enough for family consumption (3.1%).

These findings support Agube et al. (2021), that promoting sustainable harvesting practices among rural dwellers is essential for conservation. The absence of clear harvesting limits in Enugu could increase the risks of forest exploitation, while the CRNP's strict rules, though conservation-focused, may limit local livelihoods.

**Table 4: Forest product harvesting limits**

| Explanations of harvesting limits                                                                                           | CRNP communities (n=199) % | Enugu forest communities (n= 195) % |
|-----------------------------------------------------------------------------------------------------------------------------|----------------------------|-------------------------------------|
| Zero encroachment regulation in the CRNP                                                                                    | 18.59                      | 0.00                                |
| No limit: it is free because it is community property, but not the logging of trees                                         | 17.59                      | 38.46                               |
| It's been under the park guard, and it's far from where I am living                                                         | 13.07                      | 0.00                                |
| No law about the quantity to collect                                                                                        | 11.56                      | 41.54                               |
| Just do not overharvest                                                                                                     | 10.05                      | 2.56                                |
| You collect as much as will be enough for family consumption, and not for commercial purposes                               | 9.05                       | 3.08                                |
| I think for the park, one can pick snails or mushrooms or vegetables, but not logging or hunting                            | 8.54                       | 0.00                                |
| Yes, because I can only collect resources that are commensurate with the amount of money I paid or assigned to in my ticket | 8.04                       | 0.00                                |
| It depends on the resources you are collecting, as the permission to cut trees is limited to the quantity permitted to you  | 3.02                       | 14.36                               |
| If you are not rich, they will penalise you for accessing it anyhow                                                         | 0.50                       | 0.00                                |

Source: Field survey, 2022

### Conclusion and Recommendations

The governance and management of community forests play a dual role in enhancing rural livelihoods and promoting forest conservation. By supporting income-generating activities and enforcing harvesting limits, these approaches contribute to sustainable development while protecting forest resources. Restrictions on unauthorized access, particularly by non-community members, further reinforce this balance between use and preservation.

To achieve long-term sustainability, a combined application of zero-tolerance rules (for core conservation areas) and controlled access regulations (for managed use zones) is recommended. This dual approach supports both forest regeneration and the responsible use of forest resources.

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