

PERCEPTIONAL DYNAMICS AND ATTITUDINAL PATTERNS OF LAGOS INHABITANTS TOWARD URBAN FORESTRY PRACTICES

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Abstract

Urban forestry has become an essential component of sustainable city development, particularly in megacities experiencing rapid urbanization and environmental degradation. This study assessed the perception and attitude of city dwellers toward urban forestry in Lagos, Nigeria. A descriptive survey design was employed, and structured questionnaires were administered to 400 randomly selected respondents across seven Local Government Areas. Data were analyzed using descriptive and inferential statistical methods including mean scores, chi-square, correlation, and ANOVA. Findings revealed that respondents possessed high awareness of urban forestry and its environmental benefits, including improved air quality, shade provision, reduction of heat, and enhanced aesthetics. Perception of urban forestry was highly positive, with residents acknowledging its importance for climate resilience, public health, and urban sustainability. Attitudes toward participation were also positive, with many expressing willingness to support tree planting campaigns, maintain trees in their surroundings, and endorse policies regulating indiscriminate tree felling. Significant relationships were found between awareness and perception ($r = 0.52$, $p < 0.05$), as well as between perception and attitude ($r = 0.61$, $p < 0.05$). Education level also significantly influenced attitude ($F = 4.73$, $p < 0.05$). The study concludes that Lagos residents hold favorable views toward urban forestry and are willing to participate in greening initiatives. It recommends strengthened awareness campaigns, expansion of green infrastructure, enhanced community involvement, and integration of environmental education into school curricula to support sustainable urban forestry development.

Keywords: Sustainable, Perception, Forestry, Infrastructure, Environmental

Introduction

Urban forestry is increasingly recognized as a vital component of sustainable urban development across the world. It refers to the cultivation,

management, and protection of trees and green spaces within urban and peri-urban areas to enhance the environmental, social, and economic well-being of residents (Miller *et al.*, 2015). As cities

expand and land-use pressures intensify, urban forestry becomes even more important for mitigating environmental degradation, enhancing human health, and ensuring ecological stability (Nowak and Dwyer, 2010).

Lagos, Nigeria’s largest urban center, is a rapidly developing megacity characterized by high population density, industrialization, and significant infrastructural expansion. Its population, estimated to exceed 20 million, exerts immense pressure on land resources, resulting in deforestation, loss of biodiversity, increased flooding, poor air quality, and urban heat island effects (Lagos Bureau of Statistics, 2022). Green spaces are continuously threatened by unregulated development, informal settlements, and commercial activities (Aderogba, 2017).

Despite these challenges, agencies such as the Lagos State Parks and Gardens Agency (LASPARK) and the Forestry Research Institute of Nigeria (FRIN) have initiated programmes aimed at promoting urban greenery, tree planting campaigns, and environmental awareness. However, the sustainability of these initiatives depends heavily on the knowledge, perception, and attitudes of city dwellers.

Human perception and attitude are key determinants of environmental behaviour.

Studies suggest that individuals who

Local Govt. Area	Latitude	Longitude	Reference Address
1 Ikeja	6.5852° N	3.3443° E	Ikeja GRA, Ikeja, Lagos
2 Surulere	6.5009° N	3.3546° E	14 James Robertson Rd, Surulere, Lagos
3 Eti-Osa	6.4334° N	3.4398° E	Muri Okunola St, Victoria Island, Lagos
4 Alimosho	6.6054° N	3.3088° E	3 Bada St, Akowonjo, Lagos
5 Lagos Island	6.4549° N	3.4246° E	Lagos Island, Lagos
6 Kosofe	6.5824° N	3.3851° E	53 Ogudu Rd, Ojota, Lagos
7 Ikorodu	6.6086° N	3.4976° E	Oba Sekumade Rd, Ikorodu, Lagos

The research was conducted in Lagos, the economic capital of Nigeria and one of the fastest-growing megacities in Africa.

perceive urban forests positively are more likely to support green initiatives, participate in tree planting, and advocate for greener urban policies (Chen and Jim, 2008; Jankovska *et al.*, 2021). Conversely, limited awareness, negative attitudes, and lack of environmental education reduce public participation, leading to poor urban forest management outcomes.

Given the peculiar socio-economic, cultural, and environmental dynamics of Lagos, it is essential to assess how city dwellers perceive urban forestry and what attitudes they hold toward its development, protection, and maintenance. Understanding these perceptions and attitudes will guide policymakers, planners, and environmental managers in designing effective strategies for sustainable urban forestry

Study Area

The study was conducted across seven (7) purposively selected Local Government Areas (LGAs) in Lagos State, Nigeria. The LGAs span diverse geographical and socio-economic clusters, covering both urban and peri-urban zones of the Lagos metropolis. The GPS coordinates below indicate the precise location of each LGA secretariat as the administrative reference point for each study zone.

Lagos comprises multiple densely populated urban districts with limited green spaces and high environmental

pressure. Urban forestry programmes in Lagos include tree planting campaigns, establishment of mini-parks, waterfront restoration, and environmental education

efforts spearheaded by Lagos State Parks and Gardens Agency (LASPARK) and the Ministry of Environment.



Fig. 1: Map showing Lagos State

Methodology

Research Design

This study adopted a descriptive survey research design to assess the perception and attitude of city dwellers toward urban forestry in Lagos. This design was chosen because it allows the collection of data from a large population sample using standardized instruments, enabling quantitative information on people's opinions, attitudes, and awareness about urban forestry initiatives. The design is suitable for environmental and social research that seeks to understand public perception across diverse demographic groups.

Population of the Study

The target population consisted of adult residents (18 years and above) living in selected areas across Lagos State. These include residents of Ikeja, Surulere, Eti-Osa, Alimosho, Lagos Island, Kosofe, and

Ikorodu. This population was chosen because residents are direct beneficiaries of, or contributors to, the state of urban forestry and environmental resource management.

Sample Size and Sampling Technique

A sample size of 400 respondents was determined using the Yamane (1967) formula for sample size estimation at a 95% confidence level and 5% margin of error.

A multi-stage sampling technique was used:

Stage 1 – Selection of LGAs: Seven LGAs were selected using purposive sampling based on population density and urban forestry relevance.

Stage 2 – Selection of wards/communities: Two wards were randomly selected from each LGA.

Stage 3 – Selection of respondents: Systematic random sampling was used

to select respondents in households, using an interval of 1 in every 3 houses. This method ensured fair representation of different geographical and socio-economic clusters.

Research Instrument

Data were collected using a structured questionnaire, developed from reviewed literature and validated by FRIN experts. The questionnaire comprised four sections:

Section A: Demographic characteristics (age, gender, education, occupation, residential location)

Section B: Awareness and knowledge of urban forestry

Section C: Perception of benefits of urban forestry

Section D: Attitudes and willingness to participate in urban forestry activities

A 5-point Likert scale (Strongly Agree to Strongly Disagree) was used for items measuring perception and attitude.

Reliability of the Instrument

A pilot test was conducted on 40 residents in Ibadan Metropolis, outside the study area, to test the reliability of the instrument. The internal consistency was measured using Cronbach's Alpha, yielding coefficients of:

- Awareness: 0.78
- Perception: 0.82
- Attitude: 0.85

All values exceeded the acceptable threshold of 0.70, confirming the instrument's reliability.

Data Collection

Data collection involved face-to-face administration of questionnaires.

Research assistants were trained on environmental ethics, sampling procedures, and questionnaire administration. Respondents were assured of confidentiality, and participation was voluntary. Data collection spanned four weeks, ensuring adequate time for diverse urban engagements.

Data Analysis

Completed questionnaires were coded and analyzed using Statistical Package for the Social Sciences (SPSS) version 25.

The following statistical tools were used:

Descriptive statistics: frequencies, percentages, mean scores

Inferential statistics:

- Chi-square tests (to assess relationship between demographics and perception)
- Independent samples t-test and ANOVA (to compare attitudes across groups)
- Pearson correlation (to determine relationships between awareness, perception, and attitude)

All hypotheses were tested at 0.05 level of significance.

Results And Discussion

Considering the result from Table 1 summarizes key demographic variables. Respondents represented a broad cross-section of Lagos city dwellers, with the largest age group being 31–45 years and a majority having tertiary education. This diversity supports the reliability of the study's findings.

Table 1: Demographic Profile of Respondents (N = 400)

Variable	Category	Frequency (%)
Gender	Male	192 (48.0)
	Female	208 (52.0)
Age	18–30 years	110 (27.5)
	31–45 years	165 (41.3)
	46–60 years	95 (23.7)
	61+ years	30 (7.5)
	Primary	34 (8.5)
Education	Secondary	118 (29.5)
	Tertiary	204 (51.0)
	Postgraduate	44 (11.0)
Occupation	Civil servants	96 (24.0)
	Artisans/traders	120 (30.0)
	Private sector workers	126 (31.5)
	Students	58 (14.5)

Respondents’ Awareness of Urban Forestry

With result from Table 2, respondents were asked whether they were aware of urban forestry and related programmes. Respondents demonstrated high general awareness of urban forestry, particularly its environmental benefits. However, awareness of institutional bodies like FRIN and LASPARK was moderate, suggesting a need for improved public outreach. This aligns with Akinyemi and Oyeleye (2019), who reported that Lagos residents have moderate awareness of state-led environmental initiatives. A strong positive relationship exists between perception and attitude. Residents who

understand the benefits of urban forestry are more likely to support and engage in it. There is no significant difference in attitude toward urban forestry based on education level. Using ANOVA: $F(3, 396) = 4.73, p < 0.05$. Education significantly influences attitude. Respondents with tertiary/postgraduate education showed more favorable attitudes toward urban forestry. The high awareness levels indicate that Lagos residents are increasingly conscious of environmental issues, especially air quality and urban heat. This finding supports Adekunle *et al.* (2018), who observed growing environmental awareness in Nigerian urban centres.

Table 2: Awareness of Urban Forestry

Statement	Mean	Interpretation
I am aware of urban tree planting campaigns in Lagos.	3.84	High awareness
I know about the environmental benefits of trees.	4.15	Very high awareness
I am aware of FRIN and LASPARK and its activities.	3.42	Moderate awareness
I know that urban forestry contributes to climate change mitigation.	3.96	High awareness

Average mean awareness score: 3.84

Respondents rated their perception of the benefits and relevance of urban forestry. Table 3 shows perception of urban

forestry among Lagos residents is overwhelmingly positive. Respondents strongly believe that urban forestry

contributes to climate regulation, public health, and urban livability. This corresponds with findings by Jim and Chen (2009) and reinforces that urban residents value ecosystem services provided by green spaces. There is a moderate, positive, and significant relationship between awareness and perception. Higher awareness contributes to better perception of urban forestry

benefits. There is no significant relationship between residents' perception and their attitude toward urban forestry, $r = 0.61$, $p < 0.05$. Respondents demonstrated strong positive perceptions of urban forestry benefits. This aligns with theories of ecosystem services and findings by Jim (2004), who noted that urban residents appreciate the aesthetic and climatic benefits of trees.

Table 3: Perception of Urban Forestry

Item	Mean	Interpretation
Urban trees improve air quality.	4.22	Positive perception
Urban forests help reduce heat and provide shade.	4.31	Positive perception
Green spaces improve mental health and recreation.	4.12	Positive perception
Urban forestry is essential for Lagos' sustainability.	4.25	Positive perception
Tree planting should be a government priority.	4.36	Very positive perception

Overall perceptions mean score: 4.25

Attitude toward Urban Forestry

Respondents' attitudes were examined to assess willingness to support, participate in, or protect urban forestry initiatives. Respondents exhibited a positive attitude toward urban forestry Table 4. Many expressed willingness to participate in tree planting and support urban greening policies. These findings are consistent with Ogunyemi *et al.* (2020), who noted increasing public willingness to participate in environmental activities in southwestern

Nigeria. There is no significant relationship between residents' awareness and their perception of urban forestry. Using Pearson's correlation: $r = 0.52$, $p < 0.05$. The generally positive attitudes reflect willingness to participate in tree planting, though some concerns remain about sustained maintenance and policy enforcement. This supports FAO (2016) observations about public participation being essential for successful urban forestry.

Table 4: Attitude toward Urban Forestry

Statement	Mean	Interpretation
I am willing to participate in community tree planting.	3.88	Positive attitude
I support policies promoting urban forestry.	4.10	Very positive attitude
I am willing to maintain trees in my residence.	3.96	Positive attitude
I believe cutting down urban trees should be regulated.	4.18	Strongly positive attitude
I will support funding for urban forestry initiatives.	3.82	Positive attitude

Overall attitude mean score: 3.99

Conclusion

The study concludes that Lagos residents possess high awareness, positive

perceptions, and supportive attitudes toward urban forestry, indicating a strong foundation for expanding green initiatives

across the metropolis. Urban dwellers recognize the ecological and social benefits of trees, including pollution management, improved aesthetics, mental health contributions, and climate adaptation. However, moderate awareness of responsible agencies such as FRIN and LASPARK suggests gaps in public communication channels. The significant influence of education on attitude underscores the importance of environmental education in promoting sustainable behaviours. Overall, the positive disposition of Lagos residents demonstrates that urban forestry has strong public support and should be prioritized within the state's environmental and urban planning frameworks.

References

- Adekunle, V.A.J., Olagoke, A.O. and Akinele, A.O. (2018). Public awareness of environmental challenges in urban Nigeria. *Journal of Environmental Management*, 210: 215 - 223.
- Aderogba, K. (2017). Environmental challenges and urban planning in Lagos, Nigeria. *International Journal of Development and Sustainability*, 6(3): 1127 - 1140.
- Akinyemi, F.O. and Oyeleye, O.I. (2019). Lagos urban environmental challenges and green space interventions. *African Journal of Sustainable Development*, 9(1): 45 - 60.
- Chen, W.Y. and Jim, C.Y. (2008). Resident motivations and willingness-to-pay for urban biodiversity conservation in Guangzhou (China). *Environmental Management*, 41(1): 121 - 135.
- FAO. (2016). Urban and peri-urban forestry guidelines for developing countries. Food and Agriculture Organization of the United Nations.
- Jankovska-Bortkevič, E., Gavelienė, V., Šocik, B. and Jurkonienė, S. (2021). Plant microbial biostimulants as a promising tool to enhance the productivity and quality of carrot root crops. *Microorganisms*, 9(9): 1850.
- Jim, C.Y. (2004). Green-space preservation and allocation for sustainable greening of compact cities. *Cities*, 21(4): 311 - 320.
- Jim, C.Y. and Chen, W.Y. (2009). Ecosystem services and valuation of urban forests. *Environmental Management*, 44: 662 - 676.
- Lagos Bureau of Statistics. (2022). Lagos State demographic and environmental report. Lagos State Government.
- Miller, R.W., Hauer, R.J. and Werner, L.P. (2015). Urban forestry: Planning and managing urban greenspaces (3rd ed.). Waveland Press.
- Nowak, D.J. and Dwyer, J.F. (2010). Understanding the benefits and costs of urban forest ecosystems. In Kuser, J. (Ed.), *Handbook of Urban and Community Forestry in the Northeast* (pp. 25 - 46). Springer.
- Ogunyemi, A.O., Oladele, A.T. and Adeyemi, A.A. (2020). Community engagement in environmental conservation in southwestern Nigeria. *International Journal of Environmental Studies*, 77(5): 871 - 887.
- Yamane, T. (1967). *Statistics: An Introductory Analysis* (2nd ed.). Harper and Row.

TERMITE DIVERSITY AND ITS EFFECT ON SOIL FERTILITY IN OKOMU NATIONAL PARK, EDO STATE, NIGERIA

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Abstract

*Arthropoda is a very large phylum in the subdivision Invertebrata, playing a significant role in the ecosystem, it includes the very important class, Insecta, which are the most diverse and most abundant group of arthropods found virtually everywhere (ubiquitous) in large numbers, constituting nuisance to man and its livestock and crops while playing invaluable roles in ecosystem provisioning and services, as well as support. However, despite the recognized significance of termites in tropical ecosystems, comprehensive studies on termite diversity within Okomu National Park (ONP) is sparse. This study, therefore, identified termite species and evaluated their diversity within termite mounds across ranges within ONP. Termite samples were collected from representative mounds across the four ranges, Arakhuan, Igwuowan, Julius Creek, and Babui Creek in ONP, hand-picked using active search and baiting methods, then preserved in 80% alcohol for laboratory identification. Soil samples were extracted near mounds and analyzed for pH and fertility levels using a 4-in-1 soil tester. Pearson correlation analysis was employed to determine species diversity patterns associated with termite mounds across different habitat types. *Macrotermes natalensis* was the dominant termite species identified, with different maturity stages observed across various mound structures. The study elucidates termite impacts on protected environments, informing enhanced conservation strategies.*

Keywords: *Termite samples, *Macrotermes natalensis*, Okomu National Park, Soil fertility, Termite mounds*

Introduction

The most varied group of animals on Earth is insects. They play a fundamental role in nearly every ecosystem, contributing to processes such as pollination, decomposition, and food web dynamics. As members of this vast class, termites exhibit unique behaviors and ecological functions that set them apart from other insects. Termites are known as

cellulose-eating and eusocial insects and they belong to the order Isoptera (Inward *et al.*, 2007). They are found all across the world, especially in tropical and subtropical areas where they are crucial to preserving the equilibrium of ecosystems. The ecological system significance is paradoxical; while they contribute to decomposition, nutrient cycling, and soil fertility, they are also notorious for