



A review on the impact of habitat loss on wildlife populations and biodiversity in Nigeria: Implications for wildlife survival and extinction

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Abstract

Habitat loss is one of the most significant environmental challenges confronting biodiversity conservation globally, and Nigeria is among the countries most affected due to its rapidly changing landscapes. This paper examines the impact of habitat loss on wildlife populations and biodiversity in Nigeria by exploring the major drivers, consequences, and possible conservation strategies. The study identifies deforestation, agricultural expansion, urbanization, infrastructure development, mining, oil exploration, and climate change as the primary factors contributing to habitat degradation across Nigeria's diverse ecosystems. These activities have resulted in habitat fragmentation, declining wildlife populations, increased species extinction risks, reduced genetic diversity, and disruption of ecosystem functions. Nigeria's rich biodiversity, which includes numerous endemic and threatened species, continues to experience significant pressure despite existing conservation policies and protected areas. The paper also discusses the ecological, economic, and social implications of biodiversity loss, emphasizing its effects on ecosystem services, food security, climate regulation, and sustainable livelihoods. Furthermore, it highlights the need for integrated conservation approaches involving stronger environmental governance, community participation, sustainable land-use planning, habitat restoration, improved enforcement of environmental regulations, and increased investment in biodiversity conservation. Protecting Nigeria's remaining natural habitats is essential for achieving sustainable development, safeguarding ecological resilience, and ensuring the long-term survival of the country's wildlife resources. The paper contributes to the growing body of knowledge on biodiversity conservation by providing evidence-based recommendations for policymakers, conservation practitioners, and researchers.

Keywords: Habitat loss, biodiversity, wildlife population, conservation, deforestation, ecosystem, Nigeria

Introduction

The loss of habitat has significant repercussions for wildlife populations, as it diminishes the availability of essential resources such as food, shelter, breeding sites, migration routes, and ecological interactions vital for the survival of species. The destruction of habitats directly leads to a decrease in the number of animals that ecosystems can sustain. Numerous species face declining populations due to the fact that suitable habitats become overly small or fragmented. Species that are particularly impacted include: Forest elephants, Chimpanzees, Gorillas, Pangolins, African grey parrots, Several antelope species (International Union for Conservation of Nature, 2024) ^[9]. The decline in population heightens the risk of extinction, particularly for endemic and threatened species. Habitat fragmentation divides continuous forests into isolated patches. Fragmentation causes: reduced movement of animals, restricted access to food resources, smaller breeding populations, reduced reproductive success, increased vulnerability to predators and small isolated populations are more likely to disappear over time. when populations become isolated, interbreeding declines. reduced gene flow increases inbreeding and decreases genetic diversity (Akus *et al*, 2026) ^[1]. Low genetic diversity results in lower adaptability to environmental changes, increased susceptibility to disease, reduced reproductive fitness and greater extinction risk (Ekechi-Agwu, 2025) ^[4]. Habitat destruction forces wildlife into agricultural lands and settlements in search of food and shelter. common conflicts include, crop destruction by monkeys and elephants,

livestock predation, human injuries and retaliatory killing of wildlife. Such conflicts further accelerate wildlife decline. Many wildlife species depend on seasonal migration and specific breeding habitats. Roads, settlements, dams, and agricultural fields interrupt these natural movements. Consequences include reduced breeding success, increased juvenile mortality, declining population growth and local extinction of migratory species. Habitat disturbance increases contact among wildlife, livestock, and humans, facilitating the spread of infectious diseases and zoonotic pathogens (Itohowo *et al*, 2026) ^[13].

Impacts on Biodiversity and Ecosystem Services

Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. (2024) ^[12] stated that habitat loss affects not only individual wildlife species but also the overall diversity and functioning of ecosystems. As habitats disappear, many species become endangered or extinct. Species with small geographical ranges and specialized habitat requirements are particularly vulnerable. Loss of one species can trigger cascading ecological effects throughout entire ecosystems. Species richness refers to the number of species present in an ecosystem. Habitat destruction reduces species richness by eliminating sensitive species, favoring invasive species, simplifying ecosystem structure and reducing ecological resilience (Yahaya, 2026) ^[1]. Healthy ecosystems provide numerous services essential for human survival. Habitat loss reduces Pollination of crops, Water purification, Flood regulation, Carbon storage. Soil fertility, Climate regulation and Nutrient cycling (Martin and

Anikwe, 2026) ^[14]. The decline of these services has significant economic and social consequences. Biodiverse ecosystems are generally more resilient to environmental disturbances such as droughts, floods, pests, and diseases. Loss of biodiversity reduces ecosystem resilience, making ecosystems more vulnerable to collapse. Disturbed habitats often become colonized by invasive plant and animal species that outcompete native organisms, alter ecosystem processes, and further reduce biodiversity (Mustafa *et al*, 2020) ^[15]. Habitat destruction in rivers, wetlands, and mangrove ecosystems reduces fish breeding grounds and nursery habitats. Consequences include lower fish production, declining fisheries, reduced food security and loss of livelihoods for fishing communities. Deforestation and habitat degradation release large amounts of stored carbon into the atmosphere while reducing the capacity of forests to absorb carbon dioxide. This contributes to global warming, creating a feedback cycle in which climate change further accelerates habitat degradation and biodiversity loss. Biodiversity loss has far-reaching implications for human well-being (Nwabueze *et al*, 2023) ^[17]. Rural communities that depend on forests, wetlands, and wildlife for food, medicine, fuelwood, and income are disproportionately affected. Ecotourism opportunities decline, traditional knowledge associated with biodiversity may be lost, and the costs of environmental degradation including flooding, erosion, and reduced agricultural productivity increase. Consequently, habitat loss threatens both ecological sustainability and national economic development. These findings underscore the urgent need for integrated conservation strategies that combine habitat protection, ecological restoration, sustainable land-use planning, stronger enforcement of environmental regulations, and active participation of local communities in biodiversity conservation.

Conservation Policies

Nigeria has adopted several policies, laws, and institutional frameworks to conserve wildlife and biodiversity (Convention on Biological Diversity, 2024) ^[3]. These measures aim to protect natural habitats, regulate the exploitation of biological resources, and promote sustainable environmental management. Despite these efforts, biodiversity loss continues due to weak implementation, inadequate funding, and increasing human pressures on natural ecosystems. One of the major legal frameworks is the National Environmental Standards and Regulations Enforcement Agency (NESREA, 2025) ^[16] Act, which empowers the agency to enforce environmental laws and regulations, monitor compliance, and promote environmental protection. The Federal Ministry of Environment also formulates environmental policies and coordinates biodiversity conservation programmes nationwide. Nigeria has established several protected areas, including national parks, forest reserves, game reserves, and wildlife sanctuaries. National parks such as Yankari National Park, Cross River National Park, Kainji Lake National Park, and Old Oyo National Park provide refuge for numerous endangered plant and animal species. Nigeria is also a signatory to several international environmental agreements, including the Convention on Biological Diversity, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the Ramsar Convention on Wetlands, and the United Nations

Framework Convention on Climate Change (United Nations Environment Programme., 2021 & 2024) ^[19, 20]. These agreements encourage sustainable biodiversity management, habitat conservation, and international cooperation in protecting threatened species. Community-based conservation programmes have also been introduced in several parts of the country, encouraging local communities to participate in forest management, wildlife protection, and sustainable natural resource use.

Challenges Facing Biodiversity Conservation

Although numerous conservation initiatives exist, several challenges continue to undermine their effectiveness on weak enforcement of environmental laws. Illegal logging, poaching, mining, and encroachment into protected areas often continue because of inadequate enforcement, limited manpower, corruption, and insufficient monitoring. Nigeria's growing population increases demand for land, housing, agriculture, fuelwood, and infrastructure, leading to continued conversion of forests and wetlands into human settlements (Food and Agriculture Organization of the United Nations, 2022 & 2024) ^[7, 8]. Many rural households depend directly on forests for fuelwood, bushmeat, medicinal plants, and income. Economic hardship often encourages unsustainable exploitation of natural resources. Conservation agencies frequently lack sufficient financial resources for wildlife monitoring, research, habitat restoration, equipment procurement, and staff training. Increasing temperatures, flooding, desertification, and changing rainfall patterns continue to alter ecosystems and reduce the effectiveness of conservation efforts. Many communities remain unaware of the ecological and economic importance of biodiversity conservation. Environmental education and public participation remain inadequate. Uncoordinated urban expansion, agricultural development, and infrastructure projects often occur without comprehensive environmental impact assessments, resulting in irreversible habitat destruction (Aladejana, *et al*, 2026) ^[2].

Conclusion

Habitat loss remains one of the greatest threats to wildlife populations and biodiversity in Nigeria. Human activities including deforestation, agricultural expansion, urbanization, infrastructure development, mining, oil exploration, and climate change have significantly altered natural ecosystems, resulting in habitat fragmentation, declining wildlife populations, and the loss of valuable ecosystem services. These changes threaten not only endangered species but also ecological stability, food security, climate regulation, and the livelihoods of millions of Nigerians who depend on natural resources. Although Nigeria has developed several conservation policies, established protected areas, and participated in international biodiversity agreements, the effectiveness of these measures is constrained by weak enforcement, inadequate funding, rapid population growth, poverty, and poor land-use planning. Addressing these challenges requires a coordinated and integrated approach that combines strong environmental governance, habitat restoration, sustainable resource management, scientific research, and active community participation. Ultimately, conserving Nigeria's natural habitats is essential for safeguarding its rich biological heritage and ensuring sustainable development for present and future generations. Achieving this goal will

require sustained commitment from government, conservation organizations, researchers, local communities, and the private sector. Through effective policy implementation, increased public awareness, and long-term investment in conservation, Nigeria can reverse the trend of habitat loss and protect its wildlife and biodiversity for the benefit of both people and the environment.

Recommendations

To reduce habitat loss and conserve Nigeria's biodiversity, the following recommendations are proposed: Strengthen environmental law enforcement by providing adequate funding, modern equipment, and trained personnel to conservation agencies. Expand and effectively manage protected areas while improving surveillance to reduce illegal logging, poaching, and encroachment. Promote sustainable agriculture through agroforestry, conservation agriculture, and improved land-use planning to reduce pressure on natural ecosystems. Implement large-scale afforestation and reforestation programmes to restore degraded forests and improve wildlife habitats. Increase community participation by involving local people in conservation planning and providing alternative livelihood opportunities that reduce dependence on forest resources. Strengthen environmental education and public awareness campaigns to promote biodiversity conservation among students, farmers, policymakers, and the general public. Improve research and biodiversity monitoring through collaboration among universities, research institutes, government agencies, and conservation organizations. Address climate change by promoting renewable energy, reducing greenhouse gas emissions, protecting carbon-rich ecosystems, and implementing climate adaptation strategies. Enhance collaboration among government, private sector, non-governmental organizations, and international development partners to mobilize technical expertise and financial resources for biodiversity conservation.

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