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Wildlife at the Crossroads: Threats, Key issues and Legislative and Policy Framework in India and how do recent Amendments impact Wildlife Protection Laws in India

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Abstract: Wildlife conservation in India represents a critical intersection of ecological sustainability, cultural heritage, and socio-economic development. India, with its vast and diverse ecosystems ranging from the Himalayas to coastal wetlands, harbors nearly 7–8% of the world's known flora and fauna, making it one of the most biodiverse countries globally. However, this biological wealth faces mounting threats from rapid urbanization, deforestation, habitat fragmentation, poaching, human-wildlife conflict, and climate change. Although the country has implemented a strong legal and institutional framework, including the Wildlife Protection Act (1972), Project Tiger, Wildlife Sanctuaries, and Biosphere Reserves, enforcement remains inconsistent, and conservation outcomes are often undermined by anthropogenic pressures and competing developmental priorities. Key issues include the shrinking of natural habitats due to infrastructure expansion, illegal wildlife trade, and the depletion of traditional ecological knowledge that once facilitated coexistence between humans and nature. Challenges are further compounded by climate-induced stresses such as altered species distributions and ecosystem imbalances. Community participation in conservation efforts has received increased recognition, yet socio-economic dependence on forest resources frequently generates conflict between local livelihoods and preservation goals. Balancing these interests requires inclusive policies that integrate conservation with sustainable development, alongside improved monitoring, stricter law enforcement, and scientific research. Addressing the challenges of wildlife conservation in India ultimately demands a multi-pronged strategy that unites government agencies, scientific institutions, local communities, and international stakeholders. By reinforcing legal frameworks, promoting environmental education, encouraging community stewardship, and employing modern conservation technologies, India can safeguard its natural heritage while fostering ecological resilience. The success of wildlife conservation will significantly influence not only the nation's biodiversity security but also its environmental stability and cultural continuity in the decades to come.

Keywords- Wildlife, Threats, Challenges, Legislative and Policy framework, India.

I. INTRODUCTION

India, occupying merely 2.4% of the world's land area yet sustaining nearly 7–8% of its globally recorded species, epitomizes a paradox of ecological abundance amidst profound anthropogenic pressures. Its heterogeneous biogeographic zones—from the Himalayan alpine ecosystems to the Indo-Gangetic floodplains, arid deserts, tropical rainforests, and coastal mangroves—constitute an intricate web of habitats that collectively foster immense biodiversity. However, this ecological wealth is increasingly imperiled by a confluence of threats arising from rapid demographic expansion, unchecked urban-industrial growth, and intensifying natural resource exploitation. Habitat fragmentation, degradation, and outright loss remain primary drivers of species decline, compounded further by escalating incidents of human–wildlife conflict, poaching, and the expanding tentacles of the illegal wildlife trade. Overlaying these drivers is the pervasive and unpredictable influence of climate

change, which has begun to restructure species distributions and ecological balances in complex and often irreversible ways.

Despite the institutionalization of conservation efforts through legislative mechanisms such as the Wildlife Protection Act (1972), the establishment of an extensive protected area network, and flagship programs like Project Tiger and Project Elephant, conservation outcomes in India demonstrate stark variability across spatial and ecological contexts. Weak enforcement capacities, bureaucratic inertia, and inadequately integrated policy frameworks frequently exacerbate conservation deficits. Moreover, the socio-economic embeddedness of local communities—whose subsistence often depends upon forest-derived resources—renders conservation a politically contentious and socially sensitive arena. The resulting tension between ecological imperatives and developmental priorities exemplifies the structural complexity inherent in conserving biodiversity within a rapidly modernizing society.

At this critical juncture, India's wildlife conservation agenda warrants deeper interrogation not only of the threats undermining ecological integrity but also of the efficacy, inclusivity, and adaptability of extant policy frameworks. This study examines the multidimensional challenges confronting wildlife conservation in India, evaluates current strategies within both ecological and socio-political domains, and foregrounds the need for more integrative, participatory, and science-informed approaches. By situating Indian conservation efforts within broader debates on sustainability and human–nature coexistence, this paper aims to underscore pathways that secure biodiversity resilience while reconciling the overarching imperatives of national development.

II. WILDLIFE CONSERVATION AND ITS PROBLEMS & THREATS

India's wildlife conservation landscape is characterized by significant achievements alongside systemic vulnerabilities, placing biodiversity at a pivotal juncture amid rapid socio-economic change. Notable gains—such as tiger population recovery and expansion of protected areas—coexist with rising human–wildlife conflict, uneven species outcomes, and institutional capacity gaps that constrain durable, landscape-level conservation.

A. CORE THREATS

Habitat loss and fragmentation: Linear infrastructure, urban sprawl, and land-use change sever ecological connectivity, heightening edge effects and isolating populations.

Poaching and illicit trade: Enforcement progress exists but conviction rates lag, and transboundary illegal trade persists, challenging deterrence and surveillance.

Human–wildlife conflict: Expanding interfaces with elephants and big cats drive casualties, crop depredation, and retaliatory harm, demanding proactive, locally tailored mitigation.

Climate change: Altered rainfall, warming, and sea-level rise are shifting biomes and species distributions, with hotspots like Western Ghats and Sundarbans facing outsized risk.

B. SYSTEMIC CHALLENGES

Underfunding and resource constraints: Budgetary shortfalls limit habitat restoration, antipoaching, conflict response, and technology deployment at scale.

Uneven policy implementation: Strong laws face on-ground deficits due to understaffing, forensic gaps, and slow judicial processes, reducing enforcement efficacy.

Monitoring disparities: Species with flagship focus (e.g., tigers) benefit from rigorous estimation, while others (e.g., elephants) face data and transparency gaps affecting planning.

Socio-economic tensions: Livelihood dependence on forests and fragmented compensation mechanisms complicate community support for conservation.

III. KEY ISSUES ASSOCIATED WITH INDIA'S CURRENT WILDLIFE PROTECTION MEASURES

Escalating Human-Wildlife Conflict (HWC): Rapid urbanization, infrastructure expansion, and farmland encroachment have fragmented habitats, pushing wildlife into human settlements. This increases crop damage, livestock predation, and human casualties, leading to retaliatory killings. For instance, over 300 lions in Gujarat now live outside Gir's Protected Area (PA), increasing human-lion conflicts (Lion Census 2020). In the past 5

years, India has recorded 52 human casualties from elephant attacks and unnatural deaths of 552 elephants due to electrocution, train accidents, poaching, and poisoning.

Poor Habitat Management and Carrying Capacity Issues: Wildlife policies focus on increasing population numbers and to an extent miss in ensuring sufficient habitat, food, and water availability. Many species, such as elephants and tigers, require large territories, but shrinking forests restrict their natural dispersal. The Sundarbans tiger population has grown, but habitat loss due to climate change has forced tigers into villages. For instance, Mrugavani National Park extent was reduced by 22% to 280.29 hectares. And a vital wetland, Pallikaranai has shrunk dramatically due to urbanisation, threatening biodiversity and vulnerable communities in Chennai

Lack of Scientific Approach in Wildlife Relocation and Conservation: Political and regional interests often override scientific recommendations in translocation efforts. Gujarat's refusal to relocate Gir lions to Madhya Pradesh, despite Supreme Court orders, highlights this issue. Unplanned relocations can also fail if ecological factors like prey base and disease control are not considered. Cheetahs were reintroduced to India from Namibia, but multiple deaths in Kuno National Park raise concerns over habitat suitability.

Climate Change Impact on Wildlife and Ecosystems: Rising temperatures, erratic rainfall, and extreme weather events are altering animal migration patterns and degrading habitats. Wetland shrinkage and glacial retreat threaten species dependent on specific ecosystems. Marine and coastal biodiversity, including mangroves and coral reefs, are also at risk from rising sea levels. For instance, more than 150 animals, nine of them rare one-horned rhinoceros, have drowned in floods at the Kaziranga National Park in Assam. Extreme heat in India impacts all aspects of life and is increasingly causing birds to collapse mid-flight due to sunstroke-related conditions. Also, 33.6% of India's coastline faces erosion, threatening coastal biodiversity.

Inadequate Wildlife Corridors and Fragmented Connectivity: Many Protected Areas exist as isolated patches, disrupting natural movement patterns and genetic exchange among animal populations. Infrastructure projects such as highways, railways, and power lines further fragment habitats, increasing animal mortality. Despite efforts to create green corridors, land-use conflicts hinder seamless connectivity. According to railway data, over 32,000 animals, including cattle, lions, and leopards, were killed on railway tracks in the three years leading up to 2019.

Underfunding and Ineffective Utilization of Resources: Despite ambitious projects like Project Tiger and Project Lion, funding remains insufficient to meet conservation needs. Many state forest departments struggle with staff shortages and outdated equipment, limiting anti-poaching and habitat management efforts. Private sector and community-led funding models remain underutilized. The Compensatory Afforestation Fund Management and Planning Authority (CAMPA) funds remain underutilized, delaying afforestation projects and ecosystem rejuvenation for wildlife. Increasing Poaching and Illegal Wildlife Trade: Despite stricter laws, organized poaching networks and illicit wildlife trade continue to thrive due to high demand for animal parts. Smuggling routes between India, Nepal, Myanmar, and China remain active, facilitating black-market sales of tiger skins, rhino horns, and pangolin scales. Digital platforms have also become new marketplaces for illegal wildlife trade. In 2024, a rhino horn smuggling racket was busted in Kaziranga National Park in Assam, exposing links to international crime syndicates. Also, as many as 1,203 pangolins, the most trafficked wild mammal in the world, were poached for illegal wildlife trade in India from 2018-2022.

Conflicts Between Development and Conservation Goals: Balancing economic growth with environmental protection remains a key challenge, as several projects receive clearances despite ecological concerns. Mining, dam construction, and industrial expansion often take precedence over wildlife protection. Weak enforcement of Environmental Impact Assessments (EIA) allows many projects to proceed with inadequate safeguards. For instance, the Great Nicobar Development Project has raised concerns over habitat destruction for indigenous species like the Nicobar megapode.

Weak Community Involvement and Benefit-Sharing Mechanisms: While local communities play a crucial role in conservation, many policies fail to include them as stakeholders. Lack of economic incentives for communities living near PAs leads to resentment and occasional involvement in poaching or deforestation. Successful models, like eco-tourism-driven conservation, remain underutilized in many states. The Maldhari pastoralists in Gir have historically coexisted with lions, but growing human-wildlife conflict threatens this relationship. North-East Indian states such as Meghalaya, Arunachal Pradesh, Nagaland, and Assam have become the frontrunners for community led conservation projects, but other states significantly lag behind.

Lack of Technology Adoption in Wildlife Protection: India has been slow to integrate modern technologies like Artificial Intelligence (AI), drones, and satellite tracking into conservation efforts. Advanced surveillance

can help curb poaching, monitor habitat changes, and track animal movements, but implementation remains limited due to funding and training gaps. Technology-driven solutions, such as early warning systems for HWC, need wider adoption. Trail Guard is an advanced camera trap designed to detect specific species, such as tigers, and instantly transmit their images. However, its implementation and adoption remain minimal.

IV. LEGISLATIVE AND POLICY FRAMEWORK

India's legislative and policy framework for wildlife conservation rests on three core statutes—Wild Life (Protection) Act, Forest (Conservation) Act, and Biological Diversity Act—supplemented by rules, amendments, and institutional mechanisms aligned with CITES and CBD obligations.

(i) Wild Life (Protection) Act, 1972 (As Amended 2022)

Scope and objectives: Provides the legal basis for species protection, habitat management, protected areas, regulation of hunting, and control of wildlife trade; 2022 amendments align India with CITES through dedicated authorities and schedules for listed specimens.

Key 2022 changes: Establishes CITES Management and Scientific Authorities; rationalizes schedules (restructured into four, including a dedicated CITES schedule); strengthens penalties and introduces provisions on invasive alien species and improved enforcement powers under Section 50.

Section 49M rules (2024): Mandates registration of possession, transfer, births, and reporting of deaths of live CITES-listed specimens via PARIVESH 2.0, tightening traceability and compliance for live animals in Schedule IV.

Debates and concerns: Critiques include potential ambiguities around permissible uses (e.g., elephants), incomplete species listings, and human–wildlife conflict not fully addressed by statutory text alone, indicating the need for robust rules and implementation.

(ii) Forest (Conservation) Act, 1980 (Amended 2023)

Purpose: Regulates diversion of forest land for non-forest use, requiring central approval and stipulating compensatory measures; foundational for safeguarding forest habitats crucial to wildlife.

2023 amendment: Adds a preamble linking forests to net-zero goals and expands permissible activities (e.g., eco-tourism facilities, zoos/safaris outside protected areas, silviculture), while introducing new exemptions and terms for surveys, subject to conditions set by the Centre.

Governance debate: Civil society and expert critiques warn that broadened exemptions and definitional gaps may ease diversion in sensitive areas, with petitions before the Supreme Court highlighting risks to the Godavarman jurisprudence on "forest" and expanded "non-forest" purposes.

(iii) BIOLOGICAL DIVERSITY ACT, 2002 (AMENDED 2023) AND ABS RULES (2025)

Framework: Implements CBD through a three-tier system—National Biodiversity Authority (NBA), State Biodiversity Boards (SBBs), and Biodiversity Management Committees (BMCs)—to regulate access, conservation, and equitable benefit sharing of biological resources and associated knowledge.

2023 amendment issues: Changes expand exemptions and adjust approval/intimation requirements, raising concerns about the scope of regulatory oversight and implications for fair and equitable benefit sharing post Divya Pharmacy judgment.

2025 ABS rules: Introduce guidance on Digital Sequence Information (DSI), set benefit-sharing slabs by turnover, and clarify PIC/approval processes, strengthening traceability of use and community benefit flows in commercialization and research.

(iv) INSTITUTIONS AND ENFORCEMENT ARCHITECTURE

Central/state authorities: CITES Management and Scientific Authorities under WLPA; Chief Wildlife Wardens; Wildlife Crime Control Bureau (WCCB); forest departments; customs and investigative agencies for cross-border trafficking.

Protected areas: Statutory categories under WLPA include national parks, wildlife sanctuaries, conservation reserves, and community reserves; creation, notification, and management plans flow from state and central actions under WLPA.

Advanced Research Facilities: In December 2024, the MoEFCC inaugurated a Next Generation DNA Sequencing facility at the Wildlife Institute of India in Dehradun. This facility enhances research capabilities in wildlife genetics, aiding in the development of effective conservation strategies.

Wildlife Crime Control Bureau (WCCB): Established to combat organized wildlife crime, the WCCB coordinates enforcement actions, gathers intelligence, and assists in international efforts to curb illegal wildlife trade. Between 2019 and 2023, the WCCB conducted 166 joint operations in the North Eastern Region, leading to the arrest of 375 wildlife offenders.

(v) Community Involvement and Awareness

'Ek Ped Maa Ke Naam' Campaign: Launched on World Environment Day 2024, this initiative encourages individuals to plant trees in honour of their mothers and Mother Earth. By December 2024, over 102 crore trees had been planted under this campaign, with a target of 140 crore trees by March 2025.

World Wildlife Day Celebrations: The 2024 World Wildlife Day, themed "Connecting People and Planet: Exploring Digital Innovation in Wildlife Conservation," was celebrated at Okhla Bird Sanctuary. The event featured eco-trails, poster-making competitions, and interactive sessions to raise awareness about wildlife conservation.

(V) IMPACT OF AMENDMENTS WILDLIFE PROTECTION LAWS IN INDIA

Recent amendments reshape India's wildlife protection architecture in three pivotal ways: trade compliance and enforcement have strengthened under the Wild Life (Protection) Act, land-use controls over forests have been loosened in parts under the Forest (Conservation) Act, and access-and-benefit-sharing has been formalized and expanded (including digital sequence information) under biodiversity rules—together creating mixed outcomes for conservation and community rights.

Wild Life (Protection) Amendment Act, 2022: tighter CITES alignment, higher penalties

CITES integration: Creates statutory Management and Scientific Authorities, adds a dedicated schedule for CITES-listed specimens, and systematizes permits and possession, improving traceability and cross-border control of wildlife trade.

Rationalized schedules and penalties: Consolidates species schedules and increases fines, aiming to deter poaching and illegal possession; auxiliary 2024 rules operationalize registration and reporting for live listed specimens, tightening compliance.

Practical impact: Expected gains in enforcement coordination and data integrity; concerns linger over species coverage gaps, permitted uses (e.g., captive elephants), and execution capacity across states.

Forest (Conservation) Amendment Act, 2023: broader exemptions, streamlined diversion

Substantive change: Introduces exemptions and expands permissible activities (eco-tourism facilities, safaris outside PAs, surveys), and reframes objectives linking forests to net-zero targets, easing certain approvals for non-forest uses.

Conservation risk: Analysts warn revised definitions/exemptions could create loopholes that enable diversion, fragment corridors, and sideline community consent, with potential upticks in human–wildlife conflict and biodiversity loss in frontier landscapes.

Governance implications: More central discretion and faster clearances may reduce procedural scrutiny; critics flag inconsistencies with the Supreme Court's broader "forest" interpretation under Godavarman, prompting legal and policy contention.

Biological Diversity (Amendment) Act, 2023 and ABS Regulations, 2025: clearer benefit-sharing, DSI coverage

New ABS framework: 2025 regulations set turnover-linked formulas (0.2%–0.6%) and minimums for high-value species (≥5%, up to ≥20%), and bring digital sequence information within benefit-sharing, closing a major gap in genomic-era utilization.

Exemptions and efficiency: Exemptions for small users and cultivated medicinal plants, and defined timelines, aim to reduce compliance burdens while maintaining equity for communities via NBA/SBB/BMC mechanisms.

Conservation–equity effect: Formalized ABS can strengthen local stewardship and trace value chains in pharma/biotech, though some scholars caution that wider exemptions risk diluting revenue streams for communities without strong implementation.

Net effect on wildlife protection

Strengthened: International trade control, penalties, and specimen tracking; potential uplift in inter-agency enforcement and data systems under WLPA amendments.

Weakened or uncertain: Forest diversion pathways and exemptions may undercut habitat integrity and connectivity unless corridor safeguards and consent processes are reinforced during project appraisal and clearance.

Evolving: ABS rules could align conservation finance with community rights if rigorously enforced, especially with DSI and high-value species; outcomes hinge on transparent audits and benefit flows to local custodians.

Actionable implications for policy and practice include embedding corridor safeguards and climate screens into FCA clearances, completing WLPA schedules with open data and forensic support, and instituting third-party audits for ABS distribution to BMCs to ensure equitable, pro-conservation incentives on the ground.

CONCLUSION

India's wildlife conservation efforts are at a crossroads, where proactive strategies are essential to balance ecological integrity with development needs. Strengthening habitat connectivity, leveraging technology, and fostering community participation can ensure long-term sustainability. A holistic approach will not only safeguard India's rich wildlife but also secure its ecological and economic future.

CONFLICT OF INTEREST

The authors stated that there are no conflicts of interest regarding the publication of this paper.

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