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Human-Animal Conflict and Livelihood Vulnerability in Wayanad District, Kerala

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ABSTRACT

The conflict between humans and animals in Wayanad district, Kerala, illustrates the interplay of ecological change, conservation governance, and employment instability in forest-adjacent regions. This research employs a political ecology framework to examine the effects of conservation policies, institutional structures, and power relations on the livelihood vulnerability of people reliant on forests. The research demonstrates that disputes are associated with alterations in land use, centralized conservation control, and the legacy of colonial institutions, utilizing secondary data, policy papers, and prior empirical studies. These alterations significantly affect small and marginal farmers, Scheduled Tribe communities, and agricultural labourers. Insufficient and protracted compensation schemes intensify socio-economic instability and erode trust in public institutions. This paper asserts that human-animal conflict in Wayanad extends beyond ecological aspects, constituting a political and governance issue that requires participatory, decentralized, and socially equitable policy solutions to align conservation objectives with livelihood security.

Keywords: Human-animal conflict, Livelihood vulnerability, Political ecology, Environmental governance, Forest-fringe communities.

Introduction

"Human-animal conflict has existed for as long as humans and wild animals have shared landscapes and natural resources" (Lamarque et al. 2009, 1). Contemporary disputes have intensified due to increased population influx into regions, alterations in land utilization, the construction of new roads and infrastructure, and conservation initiatives, particularly in forest-

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adjacent areas of the Global South. “Human-wildlife conflict occurs when human activities disrupt wildlife habitats, resulting in damage to crops, property, and, in severe instances, fatalities” (Rajan 2025, 456). In India, forest-adjacent regions have experienced a significant increase in such disputes as agriculture increasingly intersects with protected forests and wildlife corridors.

In regions such as Wayanad in Kerala, where agricultural communities live near protected forests, human-animal conflict has become a persistent and systemic issue rather than a singular occurrence. The incursion of animals into fields and residences has become prevalent, endangering rural residents and jeopardizing their livelihoods. Small and marginal farmers, tribal households, and agricultural labourers are disproportionately affected due to their dependence on land-based livelihoods and their constrained capacity to endure repeated losses. As a result, human-animal conflict has transformed into a chronic governance challenge rather than a temporary ecological disruption. Despite the escalating nature of these conflicts, most academic research has focused on ecological and technical factors. Many studies clarify conflict mainly by examining wildlife behaviour, population dynamics, or environmental imbalance, while overlooking political, institutional, and governance-related factors. Prominent specialists, such as E. A. Jayson, frequently assert that behavioural changes in humans and animals instigate conflict, thereby diminishing the significance of policy decisions and power dynamics (Jayson 2016, 5). These methodologies obscure the influence of conservation governance and development trajectories on the interactions between humans and wildlife.

This analytical bias reflects a common tendency in environmental policy to prioritize ecological ethics over humanitarian issues. In Kerala, conservation initiatives frequently impose restrictions on communities living at the peripheries of forests, while simultaneously permitting extensive infrastructure development, commercial crops, and encroachments by influential individuals. These paradoxes illustrate that conservation governance may reinforce social inequality rather than alleviate environmental conflict. This research aims to address an analytical gap by examining human-animal conflict in Wayanad through the lenses of political ecology and environmental governance. The research employed a qualitative, descriptive approach, utilising secondary data, policy documents, governmental publications, and previous studies to analyse the effects of conservation policies and institutional frameworks on livelihood vulnerability.

1. Theoretical Framework: Political Ecology and Environmental Governance

This research is grounded in political ecology, a discipline that examines environmental issues through the lens of power, political authority, and socio-economic disparity. Political ecology critiques apolitical and technical explanations by situating environmental conflict within broader political, economic, and institutional contexts (Pankaj 2016, 102). Political ecology asserts that

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historically established power dynamics, governance frameworks, and policy choices affect resource availability and vulnerability to environmental threats, rather than perceiving environmental outcomes as neutral or inevitable.

Political ecology interrogates perspectives on human-animal conflict that perceive these interactions solely as ecological imbalances or modifications in wildlife behaviour. It emphasizes how conservation strategies, land-use regulations, and forest governance frameworks influence the interactions between people and the environment. The state, market dynamics, and institutional structures profoundly shape the allocation of costs and benefits associated with conservation. Environmental disputes are not random occurrences; they are processes shaped by political and institutional dynamics.

The application of this comprehensive analytical paradigm to Wayanad reveals human-animal conflict as a governance issue shaped by India's conservation policies and Kerala's socioeconomic trajectory. While wildlife protection is essential for sustainable development, its social and economic expenses are disproportionately borne by individuals living near protected areas (Roshni, Aravindhan T, and Das 2015). The wooded terrain of Wayanad, along with established animal corridors and agricultural practices reliant on the forest, renders the region increasingly susceptible to problems associated with conservation initiatives. Centralized conservation priorities and fragmented land use increase the frequency of wildlife incursions, imposing a burden on rural and forest-adjacent populations.

Conservation-oriented governance often distributes the costs of environmental protection inequitably across social groups. The extension of protected areas, wildlife protection legislation, and exclusionary conservation strategies generally prioritize ecological objectives while imposing associated social and economic burdens on communities residing near forests. In regions such as Wayanad, the wooded zones are fragmented and encircled by heavily populated agricultural areas where cash crops are cultivated with substantial chemical inputs. To protect renowned species such as elephants, tigers, leopards, and gaur, conservation organizations increasingly advocate for well-monitored forest regions that restrict human access. This technique frequently undermines indigenous livelihoods reliant on traditional forest-use practices, illustrating colonial conservation ideas (U. Münster 2012).

Environmental governance improves political ecology by analyzing the resolution of environmental conflicts through institutions, legislation, and administrative structures (Lemos and Agrawal, Environmental Governance 2008). In India, the governance of forests and wildlife is characterized by centralized authority, overlapping institutional responsibilities, and limited decentralization. These features constrain local institutions' capacity to mitigate human-animal

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conflict effectively. Policy design and implementation remain deficient, compromising the security of individuals who rely on forests and live at their peripheries.

2. Study Area: Wayanad District, Kerala

The Wayanad district, located in the northeastern region of Kerala, is an ecologically sensitive area within the Western Ghats, recognized globally as a biodiversity hotspot. The district is next to the Mysore Plateau to the northeast and the Nilgiris of Tamil Nadu. It is adjacent to notable wildlife reserves and forest corridors that facilitate animal movement across the Western Ghats during specific seasons. The current interaction between individuals and the environment in this region is closely linked to migration from central Kerala following World War II. During this period, unchecked settlement expansion transformed temporary encampments into enduring agricultural landscapes. The Forest Department assumed control of nationalized forest assets, whereas the revenue administration acquired private agricultural properties. The dual administrative structure imposed rigid boundaries between forests and revenue, which do not consistently align with animal migration patterns (Münster and Münster 2012, 44). The district features numerous forests, undulating hills, and a combination of agricultural terrains alongside conserved forest regions. This renders it particularly susceptible to disputes between humans and animals.

The economy of Wayanad predominantly relies on smallholder agriculture, plantation crops such as coffee and pepper, and wage labour. This influences the region's social and economic characteristics. A significant portion of the population comprises Scheduled Tribes. A significant number reside in towns adjacent to forests and maintain robust cultural and subsistence connections to forest environments. Kerala comprises 36 Scheduled Tribes, with Wayanad housing the largest population of these groups. The 2011 Census indicates that the district comprises 151,443 tribal inhabitants, representing around 37.36% of Kerala’s overall tribal population (Rajeev and Rodriguez 2024). Wayanad exists at the intersection of conservation and livelihood requirements due to the proximity of human settlements to wooded regions. Elephants, wild boars, and huge carnivores frequently intrude upon fields and residences. These interactions result in crop destruction, animal loss, and heightened threats to human safety, hence rendering rural households increasingly vulnerable in their livelihoods (Münster and Münster 2012). The frequency and severity of these conflicts have transformed interactions between humans and animals from an isolated issue into a persistent challenge for the district’s administration.

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3. Nature and Dynamics of Human-Animal Conflict

Human-animal conflict in Wayanad predominantly occurs in areas adjacent to forests and administrative divisions along forest peripheries and wildlife corridors. The locations include Thirunelli, Sulthan Bathery, Noolpuzha, Nenmeni, Poothadi, and Thavinjal (Preparatory Survey for Wayanad Comprehensive Environment Conservation and Community Development Project 2014). Wild boars, deer, monkeys, leopards, tigers, and Malabar giant squirrels are among the animals that adversely impact rural populations by ravaging crops, slaughtering livestock, and occasionally injuring or killing individuals (Clement and Srinivasa 2019). In the region, elephants are also a significant source of conflict. The temporal dynamics of conflict indicate a shift from seasonal patterns associated with planting and harvesting to year-round occurrences. This alteration exacerbates the economic vulnerability of small and marginal farmers with limited landholdings. Crop losses during critical periods in agriculture can result in abrupt declines in revenue, increased debt, and prolonged livelihood insecurity.

Alongside immediate losses, human-animal conflict in Wayanad exhibits structural characteristics shaped by prolonged changes in land use and governance. The expansion of agriculture, plantation economies, and infrastructure has fragmented historic wildlife corridors by disrupting ecosystems. Monoculture plantations of teak, eucalyptus, and acacia have impeded wildlife's access to food, compelling them to encroach upon agricultural lands and residential areas (Kerala n.d.). Governance shortcomings, including inadequate preventive infrastructure, limited early warning systems, and sluggish institutional responses, intensify conflict as a persistent feature of rural life.

4. Livelihood Vulnerability and Socio-Economic Impacts

The recurrent and erratic occurrence of wildlife-related losses significantly exacerbates livelihood vulnerability in Wayanad. Continued crop damage undermines household financial stability, particularly for small and marginal farmers reliant on limited land and seasonal agricultural practices. Records from the Forest Department indicate that there were 6,863 instances of agricultural damage and property loss in 2022–23 (Administration Report 2024). Compensation is frequently insufficient, addressing only a fraction of the actual damages, and is often delayed. Farmers are compelled to secure high-interest loans when they continue to incur losses, exacerbating their debt and endangering their enterprises. Certain farmers are compelled to cease crop cultivation or alter the varieties they cultivate, thus affecting their livelihoods. The Administration Report of Kerala Forest Department 2024 states that 98 individuals were killed in human-wildlife conflicts from 2022 to 2023. This encompasses 27 fatalities attributed to elephants. This illustrates the perilous nature of these encounters for individuals and the substantial financial burden they impose. The repercussions extend beyond farmers to include

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plantation workers and agricultural labourers, whose employment is indirectly influenced by diminished farm production and reduced labour demand. Human-animal conflict also induces social and psychological repercussions, including worry, tension, and restricted mobility. Women, children, and the elderly are more susceptible due to their caregiving responsibilities, concerns for their safety, and limited mobility.

5. Institutional Responses and Governance Challenges

The colonial wildlife management in India established a systematic classification of animals into desirable species and pests. This led to the development of systematic hunting methods to regulate the population. Culling was employed to mitigate risks to agriculture, human habitation, and livelihoods through bounty systems and regulated elimination. These efforts, shaped by colonial considerations, demonstrate that individuals recognized the necessity of regulated wildlife removal to maintain environmental equilibrium (Krishnan and Villyatt 2025, 11). The Indian Wildlife Protection Act has prohibited hunting in India since 1972 (Sharma and Chandra 2025, 1834). This complicated farmers' ability to safeguard their crops and livelihood. Increasing wildlife populations, coupled with inadequate protections for human livelihoods, have led to increasingly frequent animal incursions into human settlements during specific seasons, exacerbating confrontations between humans and wildlife.

The Forest Department is the primary governmental entity addressing human-animal conflict in Kerala. Compensation systems are cumbersome due to excessive processes, extensive paperwork, and protracted payment processing times. The Concurrent List regulates forests in India, granting authority to both the central and state governments, including the Kerala Forest Department. The agency is responsible for wildlife protection and mitigating human-animal conflicts; however, overarching legislation, particularly the Wildlife Protection Act of 1972, impedes their effectiveness. They require numerous permissions and frequently must await authorization to proceed. Scarce resources, judicial oversight, and political pressures exacerbate these delays.

6. Human-Animal Conflict as a Political Issue

From a political science perspective, human-animal conflict represents a governance dilemma closely linked to state responsibility, environmental justice, and democratic accountability. The current conflict in Wayanad demonstrates that it is not solely an ecological or technical matter, but rather a politically driven outcome of conservation and development policies. Conservation initiatives that emphasize animal conservation without adequate measures for human livelihoods disseminate environmental risks unevenly, disproportionately affecting forest-dependent and agricultural communities. These dynamics illustrate fundamental structural inconsistencies

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within India's development model, marked by centralized conservation planning that often disregards local livelihood conditions. This perception renders conservation less a collective public benefit and more an external constraint, so undermining participatory governance. Resolving issues becomes increasingly challenging when the Union and State governments possess divergent goals. The Union prioritizes regulatory consistency and conservation objectives, whereas state governments such as Kerala must address immediate issues including public safety, employment loss, and social unrest. In India's federal framework, where forests are categorized under the Concurrent List, these conflicting agendas result in coordination deficiencies and procedural delays (Krishnan and Villyatt 2025). Recurring losses, inadequate compensation, and protracted responses have politicized human-animal conflict in Kerala's high-range areas, causing fuel for electoral mobilization. To address the issue, the government must be attuned to rights, decentralized, and responsive to local need, adept at reconciling conservation objectives with livelihood security.

7. Policy Implications and Recommendations

To address human-animal conflict in Wayanad, it is imperative to go beyond mere financial compensation for affected individuals and implement substantial reforms in government and institutional operations. To facilitate prompt, context-relevant interventions, it is essential to enhance decentralized decision-making via empowering Panchayati Raj Institutions. However, overlapping jurisdictions within the Concurrent List may diminish their efficacy. The functional devolution of authority and resources enables local governments to implement preventive measures, assist individuals in discovering alternative livelihoods, and facilitate prompt responses. Proactive measures such as early warning systems, community monitoring, fencing, and other barriers can mitigate disputes when implemented alongside governance. When these preventive measures prove insufficient, regulated population management, including evidence-based culling, may become necessary. Culling can be an essential component of a comprehensive wildlife management strategy when grounded in scientific study, despite its complexity and the interplay of environmental, ethical, social, and economic considerations. Ecological studies and the concept of ecosystem carrying capacity suggest that controlling animal populations, such as wild boars, deer, and monkeys, may be essential when their numbers exceed the environment's capacity to support them. Controlled culling has been implemented globally to mitigate conflicts between humans and wildlife and to restore ecological equilibrium in certain regions of Europe and Africa (Ramkumar 2025). In India, the culling of designated vermin has emerged as a requisite management strategy in Kerala, following precedents established by other states. In 2016, Himachal Pradesh permitted the culling of rhesus monkeys, Uttarakhand sanctioned the culling of wild pigs, and Bihar authorized the culling of blue bulls (Nilgai) to mitigate escalating conflicts and agricultural losses within legislative frameworks (Vijayan 2025).

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Compensation systems must be efficient, equitable, and transparent, and may include insurance and livelihood risk strategies to enhance resilience and foster trust in the government. Policies must integrate conservation with livelihood preservation, involving individuals as active collaborators through consultative forums, co-management, and local monitoring to enhance legitimacy and reduce conflict. Effective management of conflicts between humans and wildlife requires cohesive governance encompassing forestry, agriculture, revenue, animal husbandry, tribal welfare, and other stakeholders. This will ensure that solutions are socially equitable, environmentally sustainable, and responsive (Nameer 2025, 22).

Conclusion

In Wayanad, human-animal conflict illustrates the impact of ecological, socio-economic, and political factors on the lives of individuals residing along the forest's periphery. Wildlife behaviour, along with ineffective governance, delayed or inadequate pay, and rigid institutions, renders individuals vulnerable. Small farmers, tribal families, and labourers assume excessive risks, underscoring how conservation often imposes burdens on the most vulnerable.

Addressing these conflicts requires more than simple technical solutions. Centralized conservation, overlapping jurisdictions, and conflicting state-central agendas impede timely, context-specific solutions, whereas participatory, community-oriented techniques remain underutilized. Reevaluating the concepts of "culture" and "nature" at a local level is crucial to prevent outcomes resembling "green neocolonialism" or "eco-imperialism" (U. Münster 2012, 34). Sustainable management requires governance that is socially just, environmentally conscious, and politically accountable. Enhancing decentralized decision-making, community involvement, inter-departmental collaboration, and livelihood integration can promote equitable results that safeguard both biodiversity and the rights and security of communities adjacent to forests.

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