Beyond Human Law: Rethinking Forest Fire Governance Through a Posthumanist Lens in Indonesia's Peatland Frontiers

Hengky Fransiscus Munte[1], Aras Mulyadi[2], Nofrizal[3], Erdianto[4]

Abstract

Forest fires in Indonesia, particularly in Riau Province's peatland regions, are often addressed through punitive legal frameworks that center on human accountability. However, such anthropocentric approaches overlook the complex entanglements between legal systems, ecological dynamics, and non-human actors such as fire, peat, and atmosphere. This study employs a posthumanist perspective to explore the limits of current forest fire governance and the potential for rethinking law as a relational and ecological practice. Using a mixed-methods design including qualitative field observation and quantitative SWOT analysis the research examines legal enforcement, environmental impacts, and institutional capacities in Pelalawan Regency. Findings reveal that law enforcement remains reactive and fragmented, failing to address the multispecies nature of fire events. The study proposes a shift from human-centered legality toward a more-than-human legal ecology that recognizes forests not merely as resources, but as co-constituents of justice. By foregrounding multispecies interdependence, this work contributes to emerging debates on environmental ethics, legal pluralism, and ecological governance in the Anthropocene.

Keywords: Posthumanism, Forest Fire, Legal Ecology, Peatland, Environmental Governance, More-Than-Human Justice.

Introduction

Forests are often described as the lungs of the Earth, serving as oxygen producers and carbon sinks. However, this metaphor reduces forests to utilitarian functions, masking the complex interdependencies they sustain. In Indonesia home to over 97 million hectares of tropical forest deforestation and land degradation are not only ecological concerns but also political and philosophical ones, especially when they are addressed through legalistic frameworks that presume human dominion over nature.

The recurrence of forest and peatland fires in provinces like Riau reveals the failure of traditional governance systems to grasp the relational and dynamic character of ecological systems. Fires do not merely destroy; they also expose the structural tensions between law, land use, and ecological resilience. These fires are more than environmental disasters they are ruptures in the human-nature divide, forcing us to reconsider the ontological boundaries of responsibility, agency, and justice.

Legal responses to forest fires in Indonesia rely heavily on the criminalization of human behavior, often targeting individuals or corporations after ecological damage has already

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[1] Doctoral Program in Environmental Science, Universitas Riau, Indonesia. Email: fransiscusmuntehengky@gmail.com, (Corresponding Author).
[2] Doctoral Program in Environmental Science, Universitas Riau, Indonesia. Email: aras.mulyadi@lecturer.unri.ac.id
[3] Doctoral Program in Environmental Science, Universitas Riau, Indonesia. Email: nofrizal@lecturer.unri.ac.id
[4] Faculty of Law, Universitas Riau, Indonesia. Email: erdianto@lecturer.unri.ac.id

occurred. This reactive paradigm operates under a modernist logic of control and punishment, assuming that ecosystems can be managed through human rules. However, fires particularly in peatlands defy this logic. They are not fully controllable, nor are their causes easily attributable to a single actor.

Posthumanist thought challenges the foundational assumption that humans are the sole legal subjects and rightful stewards of nature. Instead, it calls for a decentering of the human in our legal, ethical, and environmental imaginations. From this perspective, forest fires are not only the consequence of negligence or greed but also the result of a failure to listen to the more-than-human world: drying peat, silenced forests, and shifting climatic patterns.

Indonesia's forest governance, grounded in national laws and regional policies, is entangled with the interests of agribusiness, global markets, and developmentalist agendas. Land is often seen as a commodity, stripped of its relational meaning and reduced to hectares, permits, and jurisdictional zones. In this context, fire emerges as both a tool of capital and a form of ecological resistance—an uncontrollable force that interrupts the extractivist project.

The province of Riau, particularly Pelalawan Regency, is emblematic of these contradictions. Despite decades of regulation, the region continues to suffer from recurring forest fires, affecting human health, biodiversity, and atmospheric conditions. Enforcement efforts though active often fall short due to weak institutional synergy, evidentiary challenges, and political-economic pressures. Yet, the fire continues to return, year after year.

By adopting a posthumanist framework, this study asks: What if law is not only about humans governing nature, but about co-existing within a web of multispecies relations? What if forests, peatlands, and even fire itself hold forms of agency that demand recognition, not control? These questions are central to rethinking environmental justice in the age of climate crisis and planetary vulnerability.

This study thus situates forest fires as more-than-human events, shaped by legal systems, ecological processes, and socio-economic forces. Rather than framing fire strictly as an illegal act, we explore it as an indicator of a deeper governance failure a failure to live ethically and lawfully with the more-than-human world. Our approach calls for legal ecologies that incorporate interdependence, vulnerability, and relational accountability.

Ultimately, the aim of this research is not simply to evaluate legal enforcement, but to contribute to a growing body of scholarship that seeks to reimagine law, nature, and governance beyond the human. In doing so, it responds to the urgent ethical imperative of our time: to develop forms of justice that honor the entanglement of all life on a burning planet.

Research Objectives

This study aims to critically examine the legal, ecological, and institutional dimensions of forest and land fire prevention in Pelalawan Regency, Riau Province, Indonesia. Using a socio-legal and posthumanist perspective, the research explores how law, governance, and environmental dynamics interact in the context of recurring ecological crises. The study is designed to address both the practical challenges of law enforcement and the broader implications for environmental justice and more-than-human ethics.

The specific objectives of the study are to:

1.   Analyze the incidence and underlying drivers of forest and land fires in Pelalawan

Regency.

2.   Examine the ecological, economic, and social impacts of forest fires, particularly on marginalized communities and ecosystems.

3.   Assess the effectiveness and limitations of current legal frameworks and law enforcement mechanisms.

4.   Investigate how regulatory gaps and corporate impunity contribute to persistent environmental damage.

5.   Explore the potential of alternative legal approaches that incorporate posthumanist and ecological justice principles.

6.   Propose integrated strategies for strengthening institutional capacity and multispecies resilience in forest fire prevention.

Literature Review

Forest and Land Fires

Forest and land fires are not merely ecological disturbances but systemic manifestations of human-nature conflict, exacerbated by capitalist land-use practices. The deliberate use of fire for land clearing in agriculture and plantations, especially in peatland ecosystems, reflects a mechanistic and utilitarian worldview that disregards the agency of non-human actors and ecological balance. According to Indonesian regulations, both natural and human causes are recognized; however, empirical evidence shows that over 99% of fires are anthropogenic.

From a posthumanist lens, forest fires demonstrate the entanglement of human decisions with atmospheric, botanical, and technological systems. Fire, as a material agent, acts beyond human control once initiated, revealing the limits of anthropocentric governance. The notion of control through law becomes problematic when fire spreads across ecological boundaries, defying jurisdictional logic. Therefore, addressing fires requires rethinking environmental responsibility beyond human-centric legal norms.

Causes of Forest Fires

The underlying causes of forest fires in Indonesia range from economic motives, such as plantation expansion, to socio-political practices like land tenure disputes. Government data attributes the highest proportion of fire incidents to land conversion (34%) and illegal farming (25%), followed by infrastructural development and social tensions. The simplification of land as a commodity reinforces extractivist logic, perpetuating dispossession and environmental degradation.

In the posthumanist discourse, fire is not merely a byproduct of human activity but a symptom of multispecies neglect. The exploitation of peatlands through canal construction and monoculture plantations transforms wet ecosystems into flammable landscapes. This process embodies a disconnection from ecological interdependence, revealing the anthropocentric blindness in land management policies. Fire becomes a form of resistance non-human, uncontrollable, and disruptive to systems of domination.

Ecological Impacts

Ecologically, forest fires accelerate biodiversity loss, disrupt ecosystem services, and intensify

global climate change. Fires destroy habitats for endangered species, degrade soil structure, and release massive carbon emissions especially from peatlands, which act as critical carbon sinks. These fires exacerbate feedback loops in the climate system, contributing to prolonged droughts and increasing fire frequency.

Posthumanist scholarship challenges the passive framing of nature as a victim. Instead, it views ecosystems as co-actors in socio-ecological networks. The collapse of biodiversity following fire events reveals the fragility of interspecies relations and the failure of human governance to acknowledge non-human rights. Restoring these systems requires a shift from dominion to reciprocity an ethic rarely embedded in conventional legal and policy approaches.

Economic Impacts

The economic consequences of forest fires are multifaceted, affecting agriculture, transportation, health systems, and public spending. In 2015, Indonesia incurred financial losses exceeding IDR 221 trillion due to fires. Disruptions in logistics, tourism, and production undermine national and regional economies, while firefighting and restoration costs burden the state budget.

Within a posthumanist perspective, economic valuation of fire damage often excludes the intrinsic worth of ecosystems and non-human life. Market-centric assessments fail to recognize the destruction of more-than-human livelihoods forests as homes, not just timber sources. Moreover, economic rationality that justifies land burning for short-term gain perpetuates structural violence against marginalized communities and multispecies futures.

Social Impacts

Socially, forest fires inflict disproportionate harm on vulnerable populations. Haze-related health issues, school closures, and forced displacement reflect the unequal distribution of environmental risk. Communities dependent on forest-based livelihoods experience economic precarity and psychological trauma, often without adequate compensation or recognition.

From a posthumanist standpoint, these social impacts underscore the need to reconceptualize justice as more than human. Fire-induced suffering transcends species boundaries, affecting both human and non-human inhabitants. The invisibility of animal suffering and ecological loss in social policy reveals the ethical limitations of human-centered governance. Fire is thus not only a disaster but a mirror of socio-environmental injustice.

Legal Framework for Environmental Law Enforcement

Indonesia's legal approach to forest fire prevention is rooted in multiple statutes, including Law No. 32 of 2009 and Law No. 41 of 1999. These laws stipulate criminal and administrative sanctions against individuals or corporations responsible for illegal burning. However, enforcement is often inconsistent due to evidentiary challenges, overlapping jurisdictions, and limited prosecutorial capacity.

Legal enforcement, as currently practiced, reflects a Cartesian legalism that separates humans from their environments. In contrast, a posthumanist critique suggests the need for a legal ecology that integrates the agency of land, fire, and atmospheric systems. Environmental law must evolve to encompass interspecies justice, recognizing the right of ecosystems not merely to exist but to flourish.

Weaknesses in Legal Enforcement

Despite a comprehensive legal framework, forest fire law enforcement in Indonesia remains weak. Prosecutors often struggle to establish direct evidence linking companies to fire outbreaks, especially when fires occur in remote areas. Moreover, political and economic pressures frequently obstruct judicial processes, leading to impunity for powerful actors.

These institutional weaknesses reveal a broader systemic issue: the law's failure to adapt to non-linear, decentralized environmental phenomena. Fires are not confined within property boundaries, and responsibility is often diffuse. Posthumanism urges a legal reconfiguration that distributes accountability across human and non-human agents recognizing collective causality rather than isolating individual fault.

Policy Direction on Forest Fire Control

Presidential Instruction No. 11 of 2015 mandates coordination among government agencies to prevent and suppress forest fires. Yet, inter-agency competition, vague role definitions, and lack of local integration limit the effectiveness of these policies. Real-time detection tools and community-based fire patrols remain underdeveloped.

In a posthumanist view, policy interventions must move beyond top-down management toward relational governance. Effective fire control requires embedding policy within the lived experiences of local ecologies, acknowledging that resilience emerges from multispecies collaboration. Technologies, communities, and landscapes must be viewed not as separate entities but as co-creators of prevention systems.

Methodology

This study adopts a qualitative-critical design with an interpretive framework grounded in posthumanist environmental inquiry. While traditional legal-environmental research emphasizes procedural accountability, this research engages with the epistemological limitations of such models. It seeks to trace the entanglements among law, ecological systems, corporate practice, and multispecies vulnerability. The chosen approach centers on the recognition that environmental crises, such as forest fires, are not caused solely by human decisions but emerge from complex relational assemblages.

Primary data were collected through in-depth interviews with fourteen informants, including environmental enforcement officials, NGO representatives, local leaders, and community members affected by fire events. These interviews were complemented by direct field observations in fire-prone areas of Pelalawan Regency. The use of semi-structured questions allowed informants to speak from their lived experience within multispecies environments. Moreover, the study engaged with non-human data through environmental signals: fire scars, smoke flows, changes in flora, and shifts in animal presence treated not as passive indicators but as forms of ecological testimony.

In addition to narrative data, this research incorporated SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis as a mapping tool not to impose managerial rationality, but to visualize how institutions position themselves in relation to ecological volatility. Legal documents, fire detection reports, satellite data, and environmental policy frameworks served as secondary sources. These were not treated as static texts but as evolving actors within a legal-ecological ecology. This methodology prioritizes situated knowledge, rejecting universalism in favor of grounded, place-based engagement with fire governance.

Results

The Material Geography of Fire in Pelalawan

The geography of fire in Pelalawan is not evenly distributed but follows patterns shaped by ecological degradation, plantation infrastructure, and seasonal climate behavior. In 2019, 561.2 hectares were burned, predominantly in deep peat zones areas drained for agriculture but never fully reclaimed. Fire events peaked in August and September, coinciding with low rainfall and intensified wind conditions. These temporal patterns indicate that fire is not random; it is seasonal, relational, and partially predictable.

Despite efforts by local government to declare zero-burning policies, landholders continue to use fire as a low-cost tool for land clearing. The fire emerges not only as a method but as a symptom of broader systemic failure where landscapes are made flammable by canalization, monoculture pressure, and drainage. Satellite monitoring tools (MODIS/TERRA-AQUA) confirm recurring hotspots near industrial plantations, suggesting that the ecological memory of fire is embedded in spatial design.

Moreover, interviews with community members and forest patrols reveal that fire is not always perceived as destruction. Some view it as part of agricultural cycles, a form of ecological reset, or even a natural event. This reflects a multivocal relationship with fire simultaneously feared, normalized, and utilized. The fire is not simply an object to control but a presence to be negotiated, resisted, or adapted to within complex socio-natural rhythms.

Legal Enforcement and Institutional Dynamics

Institutional responses to fire in Pelalawan reflect an uneven mosaic of capacity, intention, and contradiction. Between 2015 and 2018, 71 cases of land burning were recorded. However, less than half proceeded to trial, and among those, corporate convictions were rare. Evidence requirements especially proof of direct causality and intent proved to be major barriers in prosecuting actors behind fire-prone lands. Law enforcement officers consistently reported difficulties in securing real-time data or eyewitness testimony.

Legal enforcement tends to focus on individuals, often local laborers or small-scale farmers, rather than plantation corporations. This vertical targeting reflects a problematic assumption of individual guilt detached from systemic enablers. While the law is applied in form, it lacks the force to challenge the infrastructural violence embedded in plantation logics: legal permits, drainage networks, and deregulated concessions. In this landscape, law enforcement becomes reactive rather than preventative arriving after the forest is already ash.

Additionally, enforcement agencies operate within fractured institutional landscapes. Interviews reveal poor coordination between police, forestry services, and disaster management agencies. Data sharing is inconsistent, and budget allocations for fire prevention are minimal compared to firefighting. There is a lack of early-warning infrastructure and limited investment in community resilience. This institutional fragmentation mirrors the fragmented landscapes it seeks to govern—unstable, dry, and increasingly combustible.

Discussion

Reframing Fire as a More-than-Human Event

Dominant paradigms frame forest fires as human-caused disasters, amenable to law enforcement and administrative control. However, such framing flattens the ecological complexity of fire and

reinforces a binary view of responsibility. Posthumanist theory disrupts this logic by repositioning fire as a relational phenomenon not solely caused by human actors but co-produced by human decisions, ecological vulnerability, atmospheric flows, and material infrastructures.

This reframing challenges the idea that fire can be eradicated through surveillance or punishment alone. The spread of fire through dry peatlands, for instance, cannot be legislated away; it must be understood as a multispecies signal of systemic imbalance. To treat fire as solely criminal is to ignore its ontological autonomy its capacity to act beyond the logic of regulation. Fire, in this sense, becomes a non-human agent demanding new ethical, legal, and ecological relationships.

Therefore, efforts to prevent fire must shift from mechanistic control to ecological cohabitation. This involves investing in landscape resilience re-wetting peatlands, restoring biodiversity, and recognizing traditional ecological knowledge. Legal regimes must be supplemented by listening regimes attuned to the slow violence of drying soil, the return of haze, and the quiet withdrawal of species from scorched ground.

The Limits of Anthropocentric Law

Environmental law in Indonesia is founded on a model of reactive punishment and hierarchical responsibility. Yet, its inability to curb recurring fires reveals the limits of anthropocentric legality. The focus on human perpetrators, while necessary in some contexts, deflects attention from the deeper structural causes: deregulated land governance, colonial patterns of extraction, and legal fragmentation. Law, as currently practiced, presumes separability of act from effect, of nature from politics.

From a posthumanist stance, this model is insufficient for planetary governance. Law must be reimagined as ecological practice, not merely institutional procedure. Such reimagination begins by acknowledging that forests, peat, and even fire possess agency not in the human sense of intention, but in their capacity to influence, resist, and reshape human actions. In this view, justice is not merely distributive but relational: it emerges from the ability to live well with others, human and non-human.

This shift requires juridical humility the recognition that law is not above nature but entangled within it. Legal frameworks must make room for other-than-human voices: for the hydrology of drained peat, the cycles of haze, and the migration patterns disrupted by ash. This is not to romanticize nature but to redistribute political and ethical agency in a way that reflects the shared condition of precarity.

Posthuman Governance and Multispecies Futures

Governance approaches to fire must embrace posthuman ethics, centering care, reciprocity, and ecological listening. This involves moving beyond fire suppression toward the cultivation of multispecies resilience. Forest patrols, for instance, should not be evaluated solely by the number of arrests, but by their capacity to mediate human-fire-forest relationships. Similarly, investment in early-warning systems must be matched by investment in community-based knowledge and stewardship.

Technological tools such as satellite imagery and drones are crucial but insufficient if disconnected from embodied knowledges. The lived experience of communities residing near fire zones who know when the wind changes, when the moss dries, or when the birds flee must be elevated to the same status as meteorological models. Governance must become relationally intelligent, not merely procedurally efficient.

In imagining posthuman governance, we must also imagine legal ecologies where the forest is not only protected but heard. This includes granting legal standing to ecosystems, protecting traditional ecological custodianship, and resisting policy models that commodify land as investment. Posthuman governance is not idealistic; it is pragmatic in an era where old methods fail and the earth is burning. It offers not certainty, but possibility of survival, of restoration, of kinship across species lines.

Conclusion

Forest fires in Pelalawan Regency reveal more than a legal failure; they unveil a civilizational crisis rooted in our estrangement from the more-than-human world. While regulations exist, their effectiveness is undermined by institutional fragmentation, evidentiary limits, and a narrow vision of responsibility. Fire persists not because we lack tools, but because we have misunderstood the terrain on which we govern one shaped by histories of extraction, ecological neglect, and juridical hubris.

This study argues that responding to fire requires a radical shift in governance one that embraces posthumanist values of interdependence, multispecies justice, and ecological humility. Law must no longer act upon nature but within it. Peatlands must be seen not as empty land, but as living archives of resistance and memory. Fire, once seen as destruction, may also be the signal of a needed transformation in our way of being.

To imagine a future without fire's devastation is to commit to rethinking law, policy, and governance through relational ethics. This means designing systems that listen, respond, and co-evolve with their ecological contexts. In this effort, we are no longer alone. The forest, the smoke, the soil they speak. Our task is to learn how to hear them.

Recommendation

Based on the findings and reflections of this study, addressing the persistent issue of forest and peatland fires in Pelalawan requires more than regulatory improvement it demands a fundamental reorientation in how governance, law, and environmental responsibility are conceptualized. The following recommendations are offered as pathways toward a posthumanist legal ecology that is relational, adaptive, and ethically grounded in multispecies coexistence.

First, it is imperative to reconceptualize forest fire prevention policies not merely as matters of enforcement, but as practices of *multispecies care*. Government agencies must develop integrated prevention strategies that are locally embedded and ecologically sensitive. This includes restoring the hydrological integrity of peatlands, incorporating indigenous ecological knowledge into state policy, and engaging communities as co-governors rather than mere policy targets.

Second, legal reform should expand the scope of responsibility beyond individual perpetrators toward systemic actors including corporations, financial institutions, and regulatory bodies—that contribute to landscape degradation. This requires the development of ecological jurisprudence that recognizes the agency of non-human entities, such as forests, rivers, and peat, granting them legal standing and the right to protection from harm.

Third, institutions responsible for environmental governance must foster inter-agency symbiosis, moving away from fragmented responses to collaborative, cross-sectoral frameworks. This includes harmonizing data systems, creating transparent accountability mechanisms, and reallocating resources toward early warning systems that are both

technologically robust and socially informed.

Fourth, educational and policy frameworks must embed posthumanist environmental ethics into their curricula and training. Officials, legal practitioners, and environmental actors should be equipped with a deep understanding of ecological relationality, the limitations of anthropocentric law, and the necessity of honoring the entanglement between human and more-than-human worlds.

Finally, the government should invest in long-term environmental healing through ecological restoration, cultural renewal, and ethical reflection. Forest fires must be addressed not only as policy failures, but as moral calls for humility, justice, and repair. Law should be reimagined as a living, breathing system capable of evolving alongside the forests it seeks to protect.

These recommendations invite a shift from reaction to reflection, from punishment to partnership, and from control to collaboration. Only through such a posthuman turn in governance can we begin to imagine and enact futures where both human and non-human life can flourish on shared, unburnt ground.

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