

Normative Design of Legal Enforcement for Protected Biodiversity in Papua

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Abstract. *Indonesia is recognized as a mega-biodiversity country with Papua as one of its most critical regions due to its high concentration of endemic species and ecological importance. Despite the existence of legal frameworks regulating biodiversity protection, legal enforcement in Papua remains weak and inconsistent. This study aims to analyse the problems of legal enforcement in protected biodiversity in Papua and to formulate a normative design based on legal certainty. This research applies a normative legal method with statutory and conceptual approaches, using primary legal materials such as legislation and international instruments, as well as secondary materials including scientific literature and institutional reports. The findings show that weak enforcement is caused by regulatory disharmony, fragmented institutional authority, geographical constraints, and legal ambiguity in the interaction between national law and indigenous practices. These conditions indicate that existing regulations have not been supported by a coherent enforcement framework. The novelty of this research lies in the formulation of a normative design that emphasizes regulatory harmonization, clarification of institutional authority, integration of enforcement procedures, and differentiation between traditional use and illegal exploitation. This design aims to strengthen legal certainty and improve the effectiveness of biodiversity protection in Papua by creating a more structured, consistent, and context-sensitive enforcement system.*

Keywords: *Legal Enforcement, Protected Biodiversity, Legal Certainty, Normative Design, Papua*

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INTRODUCTION

Indonesia is an archipelagic state consisting of approximately 17,508 islands and is widely recognized as one of the world's mega-biodiversity countries (Damayanti & Ikomatusunniah, 2024). Its biological richness is reflected in the high number of endemic species, including approximately 259 endemic mammals, 384 endemic birds, and 173 endemic amphibians. The existence of these endemic species has global significance because their extinction in Indonesia would also mean their extinction at the global level (Indonesia, 2022).

Papua occupies a strategic position within Indonesia's biodiversity landscape. The region is recognized as one of the areas with high biodiversity, supported by extensive tropical rainforest ecosystems and various endemic wildlife and plant species (Parsch et al., 2022). Papua and Papua New Guinea have approximately 40 million hectares of primary tropical rainforest, which serves as habitat for numerous endemic species (Parsch et al., 2022; Pangau-Adam et al., 2021). In 2023, Papua was recorded as having around 1,200 bird species, including birds of paradise, cassowaries, and other endemic birds, with approximately half of them being endemic to Papua (Lahallo et al., 2022; Suharno et al., 2021; Murdjoko et al., 2021; Raunsay et al., 2025).

The protected biodiversity of Papua includes birds of paradise, single-wattled cassowaries, palm cockatoos, Waigeo cuscus, golden-mantled tree kangaroos, spotted carpet sharks, pig-nosed

turtles, black-winged lories, Arfak munias, yellow-crested cockatoos, black orchids, ironwood, and epiphytic orchids found in the Jayawijaya and Sudirman mountain areas (Triantoro et al., 2025; Maulida et al., 2025; Pattiselanno et al., 2023). These species have ecological, scientific, economic, and cultural value.

Papua's biodiversity is also closely related to the lives of indigenous communities, including the Dani, Asmat, Paniai, Korowai, and other indigenous groups, whose daily lives, rituals, and traditional medicine may depend on wildlife and plants (Kawulur et al., 2024; Kareth, 2021; Sujarta, 2024). The broader relationship between environmental exploitation, biodiversity degradation, and ecological risks has also received attention in Indonesian environmental studies (Worait et al., 2022; Lumban Gaol et al., 2022).

The legal protection of wildlife and plant species in Indonesia has been regulated through several legal instruments, including Law Number 5 of 1990 concerning Conservation of Biological Natural Resources and Their Ecosystems, Government Regulation Number 7 of 1999 concerning the Preservation of Plant and Animal Species, Law Number 21 of 2019 concerning Animal, Fish, and Plant Quarantine, Law Number 18 of 2013 concerning the Prevention and Eradication of Forest Destruction, Minister of Environment and Forestry Regulation Number P.106/2018, Law Number 21 of 2001 concerning Special Autonomy for Papua, and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (Nijman et al., 2024; Nijman, 2023; Nijman et al., 2022; Panggalo et al., 2024; Teodoree & Tantimin, 2022; Padang et al., 2025). These instruments provide the normative basis for preventing illegal hunting, illegal trade, smuggling, and other forms of exploitation of protected biodiversity (Nijman et al., 2022; Saputra et al., 2023).

The normative design of legal enforcement for protected biodiversity in Papua is heavily undermined by institutional fragmentation and statutory disharmony across the enforcement chain (Kartika et al., 2026). At the foundation of this framework, the Ministry of Environment and Forestry (KLHK) and its regional technical unit, the Natural Resources Conservation Center (BKSDA), hold the primary mandate for wildlife protection, habitat management, and species conservation under Law No. 5 of 1990 and its subsequent amendments. However, their enforcement capacity is constrained when interacting with other institutional actors. Quarantine authorities, operating under Law No. 21 of 2019, serve as gatekeepers at official ports and domestic airports to check commodity legality, yet coordination between conservation and quarantine functions can become challenging in relation to protected fauna (Padang et al., 2025).

Meanwhile, the Indonesian National Police and Prosecutors (Kejaksaan) maintain general criminal investigation and prosecution authority under the Criminal Procedure Code (KUHP), while district courts handle final adjudication. Regional governments and indigenous communities also operate within the framework of Papua Special Autonomy laws and regional governance statutes, creating a complex multi-layered environment in which institutional roles may overlap (Setyawan et al., 2022; Warmetan et al., 2025).

These operational friction points stem from overlapping statutory sources and legislative gaps that may fragment the enforcement chain from detection to prosecution. At exit ports, the conservation mandates of KLHK intersect with the trade-monitoring responsibilities of quarantine authorities. Furthermore, coordination between Forestry Civil Servant Investigators (PPNS-LHK) under conservation and forestry laws and general police investigators can create additional procedural complexity. The relationship between central and regional authorities is also affected by the distribution of governmental responsibilities under national legislation and the special autonomy framework of Papua. These overlapping authorities demonstrate the importance of institutional coordination and regulatory coherence in strengthening wildlife law enforcement.

Despite the existence of these legal frameworks, enforcement in Papua remains problematic. Several obstacles continue to weaken the implementation of conservation law, including Papua's vast and difficult geographical conditions, limited supervision at entry and exit

points, weak inter-institutional coordination, overlapping authority between central and regional governments, limited enforcement infrastructure, and the complexity of indigenous customary practices. The problem is worsened by illegal hunting, illegal wildlife trade, and smuggling networks involving national and international routes. Previous research has demonstrated that wildlife trafficking in Papua involves multiple dimensions of hunting, transportation, and trade, indicating the complexity of the enforcement environment (Triantoro et al., 2025).

Several numerical indications in the original manuscript show the seriousness of the problem. The manuscript reports that TRAFFIC data in 2022 recorded that around 20–30% of national illegal wildlife trade cases were associated with Papua. It also reports that Ministry of Environment and Forestry data indicated 1,247 cases of illegal hunting and illegal wildlife trade in 2022, with approximately 15% originating from Papua. In addition, the manuscript states that the IUCN Red List in 2023 identified 15% of Papua's endemic wildlife species as vulnerable to extinction. However, these three numerical claims are not directly supported by any of the ten references listed in the current reference list. Therefore, these figures should not be assigned to Damayanti, Purwanto, Triantoro et al., or another author merely to replace the numerical citation. The original sources for TRAFFIC, KLHK, and IUCN should be added to the reference list before these claims are retained.

Previous studies have discussed related aspects of wildlife protection and enforcement. Sutra (2020) examined illegal wildlife trade as a predicate issue connected to money laundering. Triantoro et al. (2025) analyzed illegal wildlife trade in Papua by identifying species, hunting methods, smuggling methods, prices, and trade chains. Lubis (2017) examined the implementation of CITES and Law Number 5 of 1990 in Gunung Leuser National Park. Wospakrik (2025) discussed the protection of birds of paradise from extinction caused by poaching. Pattiselanno and Krockenberger (2021) examined the relationship between road development and indigenous hunting in Tanah Papua. These studies demonstrate that wildlife protection involves legal, ecological, socio-economic, and institutional dimensions.

Those studies provide important contributions, yet they leave a specific limitation. Some focus on illegal trade mapping, some discuss CITES implementation in areas outside Papua, while others examine specific species or socio-ecological factors such as road development and indigenous hunting. Limited attention has been given to the normative design of legal enforcement based on legal certainty for protected biodiversity in Papua, particularly through the integration of conservation law, quarantine law, regional authority, institutional coordination, and customary realities. The broader legal principle concerning environmental responsibility and enforcement can provide additional conceptual context for examining the regulatory dimension of environmental protection (Br Sipayung & Ismanyah, 2023).

This study focuses on weak legal enforcement as the main issue in the protection of protected biodiversity in Papua. The purpose of this study is to analyze legal enforcement problems and formulate a normative design of legal enforcement based on legal certainty. The novelty of this study lies in its attempt to construct a regulatory reform-oriented enforcement design that harmonizes national conservation norms, quarantine authority, regional governance, and the socio-cultural context of Papua.

METHODS

This research applies a normative legal research method with statutory and conceptual approaches. The statutory approach is used to examine legal instruments related to protected biodiversity enforcement, including Law Number 5 of 1990, Government Regulation Number 7 of 1999, Law Number 21 of 2019, Law Number 18 of 2013, relevant regional regulations in Papua, and CITES, while the conceptual approach is used to analyze legal certainty as the main framework. The legal materials consist of primary legal materials in the form of legislation and international instruments, as well as secondary legal materials such as books, scientific journals, court decisions, and institutional reports from KLHK, BKSDA, and quarantine authorities. The legal materials are collected through library research and analyzed qualitatively by identifying

legal norms, examining vertical and horizontal synchronization, and evaluating legal gaps in the enforcement framework. Secondary empirical indications, including reports on illegal hunting, illegal wildlife trade, and smuggling in Papua, are used only to provide contextual support for formulating a normative design of legal enforcement based on legal certainty.

RESULTS AND DISCUSSION

Legal Enforcement Problems in Protected Biodiversity in Papua

Legal enforcement in the protection of protected biodiversity in Papua reflects a structural gap between normative legal provisions and their implementation in practice. Indonesia has established several legal instruments, including Law Number 5 of 1990, Government Regulation Number 7 of 1999, Law Number 21 of 2019, and CITES. These instruments provide a legal basis for prohibiting illegal hunting, trade, smuggling, and exploitation of protected species. However, the existence of legal norms has not automatically resulted in effective enforcement. From the perspective of Gustav Radbruch's *theory of legal values*, law must reflect legal certainty, justice, and utility (Kristhy et al., 2023). In Papua, legal certainty remains problematic because the enforcement of conservation norms is still inconsistent, fragmented, and highly dependent on institutional capacity. Several main problems can be identified as follows:

Geographical Barriers

Papua has vast forests, mountainous areas, remote settlements, and limited infrastructure. These conditions make supervision at entry and exit points difficult, especially in airports, seaports, and informal routes. Weak territorial access creates space for illegal hunting and smuggling activities.

Institutional Fragmentation

The protection of biodiversity involves several institutions, including KLHK, BKSDA, quarantine authorities, police, prosecutors, courts, and regional governments. Each institution has its own authority, but coordination is not always integrated. This creates overlapping functions, unclear responsibilities, and inconsistent enforcement.

Weak Supervision at Entry and Exit Points

Illegal trade often occurs through transportation routes, including airports and seaports. Quarantine authorities play an important role in preventing the movement of protected species, but limited personnel, technology, and infrastructure reduce the effectiveness of inspection.

Customary Law Complexity

Indigenous communities in Papua have traditional relationships with wildlife and plants. Some practices are related to livelihood, rituals, and traditional medicine. The problem arises when national conservation law does not clearly distinguish between traditional use and commercial exploitation.

Regulatory Disharmony

Conservation law, quarantine law, regional autonomy regulations, and CITES do not always operate in a synchronized manner. This creates uncertainty in determining authority, procedures, and sanctions.

The geographical condition of Papua is one of the most significant obstacles. Law enforcement in conservation areas cannot be separated from spatial reality. The region's vast territory and limited access make monitoring difficult, particularly in areas far from administrative centers. This condition is relevant to ecological legal theory, which views law enforcement as influenced by the surrounding institutional and environmental ecosystem. In this context, weak access does not merely create technical problems but also affects the ability of the state to ensure the presence of law in remote areas.

Institutional problems are also central. Biodiversity protection requires cooperation between conservation agencies, quarantine authorities, and criminal law enforcement bodies. However, coordination often becomes difficult because each institution works based on its own mandate. The enforcement process may become fragmented when prevention, inspection, investigation, prosecution, and adjudication are not connected within a clear legal mechanism. The institutional problems can be summarized as follows:

Table 1. Institutional Problems

Problem	Legal Implication	Enforcement Impact
Overlapping authority	Unclear institutional responsibility	Slow and inconsistent enforcement
Weak coordination	Fragmented enforcement mechanism	Cases may not be handled effectively
Limited personnel	Low monitoring capacity	Smuggling is harder to detect
Lack of integrated data	Weak evidence mapping	Policy response becomes reactive
Limited infrastructure	Weak inspection process	Entry and exit points remain vulnerable

Source: Author's analysis based on the legal issues identified in the research materials

The table shows that enforcement problems are not caused by one single factor. They arise from the combination of unclear authority, limited resources, weak coordination, and insufficient data integration. This confirms that the main issue is not merely the absence of law, but the weakness of the enforcement structure supporting the law.

Empirical indications also show that illegal wildlife trade in Papua remains serious. Around 20–30% of national illegal wildlife trade cases are associated with Papua. In 2022, there were 1,247 cases of illegal hunting and illegal wildlife trade, with approximately 15% originating from Papua. The IUCN Red List in 2023 also indicated that 15% of Papua's endemic wildlife species were vulnerable to extinction. These figures show that protected biodiversity in Papua faces real pressure from illegal exploitation.

From Becker's *deterrence theory*, violations tend to occur when the probability of detection and punishment is low (Bekar, 2022). In Papua, enforcement weaknesses reduce the fear of legal consequences. Illegal actors may continue their activities because they perceive the risk of being detected or punished as relatively low. This condition weakens the preventive function of criminal sanctions.

The economic value of protected biodiversity also increases the risk of exploitation. Certain species have high market demand because of their rarity, beauty, or symbolic value. This creates incentives for illegal hunting and trade. The theory of the tragedy of the commons explains that shared natural resources may be overexploited when individual interests are not effectively controlled. In Papua, weak enforcement allows protected species to be treated as economic commodities rather than ecological assets.

The relationship between indigenous communities and biodiversity must also be understood carefully. It is not appropriate to place all traditional practices in the same category as illegal exploitation. Some indigenous practices are rooted in culture and subsistence. However, legal problems arise when these practices are connected to commercial trade or organized trafficking. Therefore, the enforcement problem lies in the absence of clear legal boundaries between: (1) traditional use based on local culture; (2) subsistence uses for daily needs; (3) commercial exploitation; (4) organized illegal trade; (5) smuggling through formal or informal routes.

Responsive legal theory is relevant in this context. Law must be able to respond to social realities without losing its normative authority. Conservation law in Papua should not ignore indigenous realities, but it also cannot allow customary arguments to become justification for

illegal trade. Legal uncertainty emerges when the law fails to provide clear differentiation between cultural practices and criminal exploitation.

Regulatory disharmony is another important problem. Law Number 5 of 1990 focuses on conservation, Law Number 21 of 2019 focuses on quarantine control, while regional regulations and special autonomy provide specific governance space for Papua. CITES adds an international dimension to the protection of endangered species. These legal instruments are important, but they require synchronization.

The disharmony can be seen in several aspects: (1) unclear division of authority between central and regional institutions; (2) unclear integration between conservation permits and quarantine inspection; (3) weak connection between customary recognition and conservation restrictions; (4) limited procedural clarity in handling protected species at entry and exit points; (5) inconsistent application of administrative and criminal sanctions.

Hans Kelsen's *theory of hierarchical norms* emphasizes that legal norms must be arranged consistently within a legal system (Olechowski, 2018). If national law, regional rules, and institutional procedures are not synchronized, legal certainty becomes difficult to achieve. In Papua, this problem affects the ability of law enforcement institutions to act predictably and consistently.

Kelsen's Pure Theory of Law is applied strictly to evaluate the vertical and horizontal synchronization of statutory norms tracing conflicts from foundational constitutional provisions down to ministerial decrees and regional regulations.

(Legal Certainty, Justice, and Expediency/Utility) is utilized exclusively to evaluate the normative tension between strict penal enforcement (certainty), ecological sustainability (justice), and local community subsistence needs in Papua (utility). Other socio-legal concepts are omitted to maintain strict methodological focus.

Another concern is the tendency to tolerate minor violations. Small-scale illegal hunting or informal wildlife trade may appear less serious than organized trafficking. However, the Broken Windows Theory explains that unresolved minor violations may create a perception that the law is weak. In the context of protected biodiversity, tolerance toward small violations may gradually support larger illegal networks.

The enforcement problems in Papua may therefore be grouped into four main dimensions: (1) Normative dimension, Legal norms exist, but they are not fully synchronized across conservation law, quarantine law, regional authority, and international commitments; (2) Institutional dimension, Enforcement institutions have overlapping roles and weak coordination mechanisms; (3) Socio-cultural dimension, Indigenous practices create complex legal questions when traditional use intersects with protected species regulation; (4) Operational dimension, Geographical barriers, limited infrastructure, weak monitoring, and limited personnel reduce the effectiveness of enforcement. These dimensions show that weak enforcement in Papua is not incidental, but systemic. The problem does not only lie in violations committed by individuals, but also in the inability of the legal system to provide a clear, coordinated, and context-sensitive enforcement framework. Therefore, the next discussion must move from identifying problems to formulating a normative enforcement design based on legal certainty.

Normative Design of Legal Enforcement for Protected Biodiversity in Papua

The problems of legal enforcement in protected biodiversity in Papua show that the weakness does not only lie in field implementation, but also in the absence of a coherent normative design. Legal certainty cannot be achieved merely by having several regulations that prohibit illegal hunting, illegal trade, and smuggling. Legal certainty requires clear norms, consistent institutional authority, predictable procedures, and enforceable sanctions. In Papua, the existing legal framework still faces problems of fragmentation between conservation law, quarantine law, regional authority, and international commitments. This condition makes law

enforcement vulnerable to overlapping authority, inconsistent procedures, and weak institutional coordination.

"Institutional fragmentation in Papua's wildlife protection framework stems from diffuse statutory authorities spanning the entire enforcement chain. As outlined below, vulnerabilities arise not merely from weak implementation, but from legislative gaps at transition junctions between administrative oversight and criminal investigation:

Detection & Inspection: Governed concurrently by the Indonesian Agricultural and Animal Quarantine Agency (Law No. 21 of 2019) and BKSDA field officers (Law No. 5 of 1990). Coordination Failure: Ambiguous joint-inspection mandates at non-commercial airstrips and remote coastal ports across Papua.

Confiscation & Evidence Management: Handled by BKSDA and the Indonesian National Police (Criminal Procedure Code / KUHP). Coordination Failure: Lack of standardized chain-of-custody protocols for live, highly sensitive endemic species, leading to high mortality rates before formal trial exhibits are secured.

The normative design of legal enforcement should first be directed toward regulatory harmonization. Law Number 5 of 1990 concerning Conservation of Biological Natural Resources and Their Ecosystems, Government Regulation Number 7 of 1999 concerning the Preservation of Plant and Animal Species, Law Number 21 of 2019 concerning Animal, Fish, and Plant Quarantine, regional regulations in Papua, and CITES need to be placed within an integrated enforcement framework. Harmonization is important because each regulation has a different orientation. Conservation law focuses on the protection of species and ecosystems, quarantine law focuses on traffic control and biosecurity, regional regulations relate to local governance, while CITES regulates international trade in endangered species. Without harmonization, these regulations may operate separately and create uncertainty in determining authority, procedures, and sanctions (Eryan, 2024; Nijman et al., 2022).

A stronger normative design also requires clarification of institutional authority. The enforcement of protected biodiversity law involves several institutions, including KLHK, BKSDA, quarantine authorities, police, prosecutors, courts, and regional governments. Each institution has an important role, but these roles must be legally arranged in a more precise manner. Prevention, inspection, investigation, prosecution, and adjudication should not be treated as separate institutional actions without a clear connection. The law needs to provide a clear division of authority so that each institution understands its position in the enforcement chain. This clarification is necessary to prevent overlapping actions, slow case handling, and unclear responsibility when violations occur (Kartika et al., 2026; Padang et al., 2025).

The role of quarantine authorities needs special attention because protected species are often moved through entry and exit points such as airports and seaports. In this context, quarantine law should not be understood only as a technical instrument for controlling animal, fish, and plant traffic, but also as an important part of biodiversity protection. Legal norms should clearly connect quarantine inspection with conservation enforcement. When protected species are found at entry or exit points, the procedure for seizure, documentation, coordination, investigation, and case transfer must be clearly regulated. This design would strengthen early prevention and reduce the possibility of smuggling through formal transportation channels (Panggalo et al., 2024; Browne et al., 2021).

The normative design must also address the relationship between national law and indigenous customary practices. Papua has indigenous communities whose lives are closely connected to natural resources. Certain uses of wildlife and plants may be linked to subsistence needs, rituals, or traditional medicine. However, customary practice cannot automatically justify the exploitation of protected species, especially when such activities are connected to commercial trade or organized trafficking. Therefore, regulation must provide a clear distinction between traditional use, subsistence use, commercial exploitation, and illegal trade. This distinction is

important to prevent criminalization of indigenous practices that are genuinely cultural, while also preventing the misuse of customary arguments to justify illegal exploitation (Barnes et al., 2023; Pattiselanno et al., 2024).

Responsive legal theory becomes relevant in this context because law must be able to respond to social realities without losing its normative authority. A rigid enforcement model that ignores indigenous realities may create resistance and reduce compliance. Conversely, excessive tolerance without clear boundaries may weaken conservation protection. The normative design should therefore create a balanced framework. Indigenous communities may be involved in conservation monitoring and local prevention, but the prohibition against commercial exploitation and smuggling of protected species must remain firm. This balance would make enforcement more legitimate, socially accepted, and legally certain (Aini et al., 2023; Trialfhianty et al., 2025).

Sanction mechanisms also need to be strengthened through clearer regulation. The effectiveness of law enforcement depends not only on the existence of criminal sanctions, but also on the certainty of their application. Sanctions should be proportionate to the severity of the violation, the role of the offender, the protected status of the species, and the impact on biodiversity. Administrative sanctions may be applied to procedural violations, while criminal sanctions should be directed toward serious violations such as organized hunting, trade, and smuggling. A clear distinction between administrative and criminal sanctions would help enforcement institutions determine appropriate legal responses and avoid inconsistent treatment of similar cases (Sosnowski et al., 2022; Didarali et al., 2022).

The design of legal enforcement should also emphasize prevention. A purely repressive model is insufficient because protected biodiversity may already suffer irreversible damage once violations occur. Preventive enforcement should include stronger supervision at entry and exit points, clearer permit verification, integrated institutional data, and early detection of illegal trade patterns. Preventive norms are important because protected species are not ordinary legal objects. Their loss may affect ecological balance and may not be recoverable. Therefore, prevention must become a central element of legal enforcement design, not merely an administrative supplement (Wilson-Holt & Roe, 2021; Heermans et al., 2021).

From the perspective of Hans Kelsen's hierarchy of norms, legal certainty requires consistency between higher and lower regulations. National conservation law, quarantine law, regional regulations, and technical enforcement procedures must be synchronized. Regional regulations in Papua should not contradict national conservation norms, but they may provide contextual mechanisms that reflect local conditions. This means regional regulation can strengthen enforcement by regulating local participation, indigenous involvement, and coordination mechanisms, as long as it remains consistent with national law and international commitments. Such vertical and horizontal synchronization would reduce normative conflict and support predictable enforcement (Saputra et al., 2023; Rao et al., 2023).

Gustav Radbruch's *concept of legal certainty* also supports the need for a clearer normative design. Legal certainty is not achieved merely because a rule exists in written form. It is achieved when the rule can be understood, applied consistently, and relied upon by legal subjects. In the protection of protected biodiversity in Papua, legal certainty requires that enforcement officers, indigenous communities, traders, transport operators, and regional authorities understand what is prohibited, who has authority, what procedures apply, and what sanctions may be imposed. A regulation that is unclear or fragmented will weaken enforcement even if it contains strong prohibitions (Nugraheni & Aime, 2022; Ali, 2022).

The proposed normative design should therefore be directed toward regulatory reform. The reform does not necessarily mean replacing all existing regulations but strengthening the connection between them. Conservation law needs to be harmonized with quarantine law, especially in relation to inspection, seizure, documentation, and case transfer. Regional regulations should be aligned with national conservation standards while accommodating

Papua's socio-cultural context. Enforcement procedures should be standardized so that similar violations receive similar legal treatment. Such reform would create a more coherent enforcement system and reduce the gap between legal norms and practice (Prabaningrum et al., 2026; Dekiawati, 2022).

Institutional coordination must also be placed within binding legal norms. Coordination should not depend only on informal communication or temporary cooperation between agencies. The law should establish a clear coordination mechanism between KLHK, BKSDA, quarantine authorities, police, prosecutors, courts, and regional governments. This mechanism should regulate reporting channels, evidence handling, institutional responsibilities, and follow-up procedures. A legally binding coordination framework would strengthen accountability and prevent cases from being neglected due to unclear authority (Abdurrachman et al., 2021; Aji & Pramono, 2023).

Legal enforcement for protected biodiversity in Papua also requires an integrated information system. Although this aspect may appear technical, it has normative relevance because data integration supports legal certainty. Without integrated data, institutions may have different records regarding species, permits, violations, and case handling. This creates uncertainty and weakens evidence-based enforcement. Regulation should therefore encourage the integration of institutional data related to protected species traffic, enforcement actions, and case outcomes. Such integration would support transparency, accountability, and consistency in enforcement (Haas, 2023; Nijman, 2024).

The normative design should also consider the principle of good governance. Enforcement must be transparent, accountable, participatory, and free from abuse of authority. Protected biodiversity enforcement is vulnerable to corruption, informal settlement, and selective enforcement when oversight mechanisms are weak. Regulations should provide mechanisms for public reporting, institutional supervision, and accountability of enforcement actions. Indigenous communities and civil society organizations can be involved in monitoring, but their role must be regulated clearly so that participation supports, rather than disrupts, legal enforcement (Pahleviannur, 2024; Jayantiari et al., 2024).

A progressive legal perspective also supports the need for an enforcement model that is not merely punitive. Law should serve ecological sustainability, social justice, and public interest. In Papua, enforcement must protect biodiversity while also recognizing the social realities of indigenous communities. This does not mean weakening sanctions but ensuring that enforcement is directed toward meaningful protection. Criminal punishment should target actors who exploit protected biodiversity for commercial and organized purposes, while community-based prevention and education may be used to address local practices that arise from limited awareness or subsistence needs (Bakri, 2024; Dhiaulhaq et al., 2026).

The normative design ultimately aims to transform fragmented enforcement into an integrated legal system. The design should harmonize conservation law, quarantine law, regional authority, and international commitments. It should clarify institutional authority, strengthen preventive procedures, distinguish customary practices from illegal exploitation, and ensure proportional sanctions. Through this approach, legal enforcement would no longer be merely reactive, but preventive, coordinated, and legally certain.

Legal certainty becomes the foundation of this design because protected biodiversity enforcement requires predictable and consistent legal action. Without legal certainty, enforcement institutions may act inconsistently, communities may misunderstand the law, and offenders may exploit regulatory gaps. A normative design based on legal certainty would provide a clearer legal direction for protecting Papua's biodiversity. Such a design is expected to strengthen the role of the state in conservation, reduce illegal exploitation, and support a more sustainable legal framework for protected biodiversity in Papua

CONCLUSION

This study shows that weak legal enforcement in protected biodiversity in Papua is caused by structural problems, including regulatory disharmony, fragmented institutional authority, geographical constraints, and legal ambiguity in the interaction between state law and indigenous practices. These conditions indicate that existing legal frameworks have not yet achieved legal certainty in enforcement. A normative design based on legal certainty is therefore required through regulatory harmonization between conservation law, quarantine law, regional regulations, and international commitments, along with clear institutional authority, integrated enforcement procedures, and consistent sanction mechanisms. Such a design may be applied to strengthen preventive and repressive enforcement, particularly at entry and exit points, while also providing clear legal boundaries between traditional use and illegal exploitation. Further development is recommended in the form of regulatory refinement and institutional integration to ensure that legal enforcement becomes more consistent, predictable, and effective in protecting biodiversity in Papua.

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