Beyond Conservation: Indonesia's Maritime Security Strategy Against Transnational Wildlife Trafficking as a Non-Traditional Security Threat

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Abstract

Wildlife trafficking has evolved beyond a biodiversity conservation issue and increasingly represents a form of transnational maritime crime that threatens national security, environmental sustainability, and governance. As the world's largest archipelagic state and one of the world's megabiodiversity countries, Indonesia faces significant vulnerabilities to wildlife trafficking networks operating through maritime routes and digital platforms. This study aims to formulate strategic policy options for strengthening Indonesia's maritime security response to wildlife trafficking from a non-traditional security perspective. A qualitative descriptive approach was employed using literature review, document analysis, SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis, expert judgment validation, and Suitable, Feasible, Acceptable, and Desirable (SFAD) evaluation. The findings indicate that Indonesia possesses significant strengths, including a comprehensive legal framework, specialized institutions, and international cooperation mechanisms. However, institutional fragmentation, limited intelligence integration, and uneven enforcement capacity remain major challenges. The SFAD assessment identifies the establishment of a National Wildlife Crime Intelligence Fusion Center and an Integrated Maritime Wildlife Enforcement Task Force as the highest-priority strategic options. Based on these findings, this study proposes an Integrated Maritime Wildlife Security Strategy (IMWSS) comprising five pillars: intelligence integration, integrated maritime enforcement, technology-based digital surveillance, financial investigation and asset recovery, and regional cooperation. The study concludes that wildlife trafficking should be addressed as a maritime security issue rather than solely a conservation concern and provides a practical framework for strengthening Indonesia's response to transnational wildlife trafficking.

Keywords: *Wildlife Trafficking, Maritime Security, Non-Traditional Security, Transnational Maritime Crime, Indonesia.*

A. INTRODUCTION

Illegal wildlife trade has evolved into one of the most profitable forms of transnational organized crime, generating billions of dollars annually and threatening biodiversity, public health, economic stability, and international security. Traditionally, wildlife trafficking has been framed primarily as a conservation issue. However, recent studies demonstrate that illegal wildlife trade is increasingly linked to organized criminal networks, corruption, money laundering, document forgery, cybercrime, and transnational smuggling routes that cross national borders (Mozer & Prost, 2023; Wyatt, 2013). Consequently, the issue has expanded beyond environmental concerns and is now recognized as a multidimensional security challenge requiring a broader policy response.

The evolution of security studies has provided a useful framework for understanding this phenomenon. Buzan, Wæver, and de Wilde (1998) argue that contemporary security threats are no longer limited to military aggression but also encompass non-traditional threats affecting societal, economic, environmental, and political stability. Within this perspective, wildlife trafficking can be viewed as a non-traditional security threat because its impacts extend beyond species loss to include governance failures, illicit financial flows, weakened law enforcement, and transnational criminal activities. Wyatt (2013) further emphasizes that illegal wildlife trade possesses significant security implications because criminal syndicates often exploit weak border controls and governance gaps to facilitate trafficking operations across countries.

Indonesia occupies a strategic position within this context. As the world's largest archipelagic state, possessing more than 17,000 islands and extensive maritime boundaries, Indonesia serves simultaneously as a source, transit, and destination country for wildlife trafficking. Its rich biodiversity, combined with vast and difficult-to-monitor maritime territory, creates opportunities for criminal networks to transport protected species through domestic and international sea routes. Reports indicate that wildlife trafficking in Indonesia involves not only terrestrial species but also marine species, reptiles, birds, mammals, and rare plants traded through conventional markets, digital platforms, and cross-border smuggling channels (Nijman et al., 2022; Padang et al., 2023; Hasanah et al., 2025). Recent investigations in Papua and eastern Indonesia further reveal persistent trafficking networks connected to international markets in Southeast Asia and beyond (Triantoro et al., 2025).

From a maritime security perspective, the challenge becomes increasingly significant. Indonesia's maritime domain faces various transnational crimes, including illegal fishing, human trafficking, narcotics smuggling, piracy, and wildlife trafficking. These threats exploit similar maritime routes, logistical networks, and governance vulnerabilities (Daniel et al., 2023; Aprilia et al., 2023). Maritime wildlife trafficking frequently occurs through small ports, fishing vessels, passenger ships, and container transportation systems, making detection and enforcement difficult. The United Nations Development Programme identifies maritime transportation as one of the primary channels facilitating illegal wildlife trade due to the high volume of cargo movement and limited inspection capacity in many ports. Consequently, maritime wildlife trafficking should not be viewed as an isolated environmental crime but rather as part of a broader transnational maritime crime ecosystem.

Despite increasing attention to illegal wildlife trade in Indonesia, existing studies predominantly focus on biodiversity conservation, legal compliance, online wildlife trade, and species-specific investigations (Chotimah, 2024; Nijman et al., 2024; Hasanah et al., 2025). Relatively limited research examines wildlife trafficking through the lens of maritime security and non-traditional security studies. Moreover, discussions regarding strategic operational responses remain fragmented across conservation agencies, law enforcement institutions, and maritime security stakeholders. This situation creates a significant research gap concerning how

Indonesia should formulate an integrated maritime security strategy to address wildlife trafficking as a transnational maritime crime.

This study seeks to fill that gap by analysing wildlife trafficking from a non-traditional security perspective and positioning it within Indonesia's maritime security agenda. Specifically, this research aims to identify strategic factors influencing Indonesia's capacity to combat maritime wildlife trafficking and formulate policy options using the SWOT and Suitable, Feasible, Acceptable, and Desirable (SFAD) frameworks. The originality of this study lies in its effort to move beyond the conventional conservation paradigm and develop a security-oriented strategic framework that integrates maritime governance, law enforcement, defense diplomacy, and inter-agency cooperation. By doing so, the study contributes to the growing discourse on non-traditional security threats and provides practical recommendations for strengthening Indonesia's maritime security architecture against transnational wildlife trafficking.

Existing studies on wildlife trafficking in Indonesia have predominantly focused on biodiversity conservation, species-specific trade, legal compliance, and online wildlife markets. While these studies have significantly contributed to understanding the ecological and regulatory dimensions of wildlife trafficking, limited attention has been devoted to examining wildlife trafficking as a form of transnational maritime crime within the broader framework of maritime security governance. Furthermore, existing research rarely provides strategic policy frameworks capable of integrating conservation objectives with maritime security, intelligence, law enforcement, and regional cooperation mechanisms. This gap is particularly important in Indonesia, where maritime routes play a critical role in facilitating wildlife trafficking activities. Therefore, this study seeks to bridge the gap by reframing wildlife trafficking as a maritime security issue and developing an Integrated Maritime Wildlife Security Strategy (IMWSS) for Indonesia.

B. LITERATURE REVIEW

1. Non-Traditional Security as an Analytical Perspective

The concept of security has undergone significant transformation since the end of the Cold War. Security is no longer exclusively associated with military threats and territorial defense but has expanded to encompass political, economic, societal, and environmental dimensions. According to Buzan, Wæver, and de Wilde (1998), security threats may emerge from a wide range of non-military sources capable of undermining the stability and resilience of states and societies. This broader understanding has led to the emergence of the non-traditional security paradigm, which recognizes transnational challenges that transcend national borders and require multidimensional policy responses.

Non-traditional security threats are characterized by their transboundary nature, involvement of multiple actors, and complex impacts on governance and societal well-being. Rogozińska (2021) identifies environmental degradation, transnational crime, cybercrime, terrorism, and illegal trade as major categories of

contemporary non-traditional threats. Unlike conventional military threats, these challenges often exploit institutional weaknesses, governance gaps, and global interconnectedness. Consequently, addressing non-traditional security threats requires collaborative approaches involving government agencies, international organizations, the private sector, and civil society.

Within this framework, illegal wildlife trade can be understood as a non-traditional security threat because its impacts extend beyond biodiversity loss. The activity contributes to illicit financial flows, corruption, weakens law enforcement institutions, and facilitates the expansion of transnational criminal networks. As argued by Hidayana et al. (2021), threats targeting strategic national resources may affect broader national resilience and therefore deserve attention within the national security agenda. Accordingly, wildlife trafficking should not be treated solely as an environmental issue but also as a challenge to governance, economic security, and national resilience.

2. Maritime Security and Transnational Maritime Crime

Maritime security has become an increasingly important component of national security, particularly for archipelagic states such as Indonesia. Maritime security encompasses the protection of sovereignty, maritime resources, navigation routes, economic activities, and maritime infrastructure from various threats and disruptions. Ariadno (2021) emphasizes that maritime security in Southeast Asia is shaped by both traditional and non-traditional threats, many of which are transnational in nature and difficult to address through unilateral measures.

Indonesia's strategic geographic position and extensive maritime territory create opportunities as well as vulnerabilities. Various studies have identified illegal fishing, narcotics trafficking, human trafficking, smuggling, piracy, and maritime terrorism as major transnational maritime crimes affecting Indonesian waters (Arto et al., 2021; Daniel et al., 2023). These crimes frequently exploit porous maritime borders, limited surveillance capacity, and the complexity of maritime governance arrangements.

Recent assessments by the United Nations Office on Drugs and Crime (UNODC, 2024) indicate that maritime organized crime networks in Southeast Asia are becoming increasingly sophisticated, interconnected, and adaptive. Criminal organizations utilize maritime transportation systems, fishing vessels, cargo containers, and informal ports to facilitate illicit activities across jurisdictions. Consequently, strengthening maritime security requires integrated governance, inter-agency cooperation, intelligence sharing, and international collaboration. Indonesia has responded through maritime patrol operations, defense diplomacy, and enhanced cooperation among maritime law enforcement agencies (Aprilia et al., 2023; Manullang, 2024). However, emerging forms of transnational maritime crime continue to challenge the effectiveness of existing security frameworks.

3. Wildlife Trafficking as a Security Threat

Illegal wildlife trade has traditionally been addressed from a biodiversity conservation perspective. However, growing evidence suggests that wildlife trafficking has evolved into a highly organized criminal enterprise operating across international borders. Wyatt (2013) argues that illegal wildlife trade should be recognized as a security issue because it shares operational characteristics with other forms of organized crime, including narcotics trafficking, human trafficking, money laundering, and corruption.

Duffy (2014) introduced the concept of militarized conservation to explain how governments increasingly employ security-oriented approaches to combat wildlife crime. This perspective reflects the recognition that wildlife trafficking poses risks extending beyond species conservation. Duffy and Brockington (2022) further contend that illegal wildlife trade must be understood within broader political and security contexts because it involves power relations, governance structures, and transnational criminal networks. Similarly, White (2018) categorizes environmental crimes as serious offenses that generate long-term ecological, social, and economic harms.

Indonesia remains one of the world's most significant biodiversity hotspots while simultaneously serving as a source, transit, and destination country for wildlife trafficking. Recent studies reveal that protected species are traded through traditional markets, social media platforms, e-commerce channels, and international smuggling networks (Nijman et al., 2022; Padang et al., 2023; Hasanah et al., 2025). Investigations in Papua and eastern Indonesia further demonstrate the persistence of trafficking routes connected to regional and global markets (Triantoro et al., 2025). These findings indicate that wildlife trafficking in Indonesia is no longer merely a conservation challenge but has become part of a broader transnational criminal ecosystem.

C. METHOD

This study employed a qualitative descriptive approach to examine wildlife trafficking as a form of transnational maritime crime and to formulate strategic policy options for strengthening Indonesia's maritime security response. A qualitative approach was selected because the study seeks to understand complex interactions among environmental crime, maritime security governance, law enforcement, and non-traditional security threats rather than to test causal relationships statistically.

Data were collected through a comprehensive literature review and document analysis. The sources included peer-reviewed journal articles, books, government policy documents, international organization reports, and official publications related to wildlife trafficking, maritime security, environmental crime, and non-traditional security. Key references were obtained from academic databases as well as reports published by organizations such as UNODC, OECD, ASEAN, INTERPOL, the United States Department of State, and the Ministry of Forestry of the Republic of Indonesia.

The analytical process consisted of four stages. First, a thematic review was conducted to identify major issues, trends, and challenges related to wildlife trafficking and maritime security. Second, a SWOT (Strengths, Weaknesses,

Opportunities, and Threats) analysis was employed to assess Indonesia's internal capacities and external strategic environment in addressing wildlife trafficking. The SWOT factors were derived from the synthesis of academic literature, policy documents, and international reports.

Third, the identified SWOT factors and strategic alternatives were subjected to expert judgment validation. The validation process involved a maritime security expert with extensive knowledge and professional experience in maritime governance, maritime security policy, and national defense studies. Expert feedback was utilized to refine the identified strategic factors, evaluate the relevance of policy alternatives, and ensure consistency between the proposed strategies and Indonesia's maritime security context.

Fourth, strategic alternatives generated through the SWOT matrix were evaluated using the Suitable, Feasible, Acceptable, and Desirable (SFAD) framework. The SFAD assessment was conducted through qualitative evaluation based on policy relevance, implementation feasibility, stakeholder acceptability, and expected strategic benefits. The final scores were assigned through a combination of literature-based assessment and expert validation to determine the most appropriate strategic priorities.

The results of the SWOT and SFAD analyses were subsequently synthesized into an Integrated Maritime Wildlife Security Strategy (IMWSS), which serves as the proposed strategic framework for strengthening Indonesia's response to wildlife trafficking as a non-traditional maritime security threat.

D. RESULT AND DISCUSSION

1. Wildlife Trafficking as a Maritime Security Threat in Indonesia

Wildlife trafficking has evolved beyond a conservation issue and increasingly represents a form of transnational organized crime that threatens national and regional security. The United Nations Office on Drugs and Crime (UNODC) identifies wildlife trafficking as one of the fastest-growing illicit markets globally, operating through sophisticated criminal networks that exploit international trade routes, weak governance systems, and regulatory gaps. Similar to narcotics trafficking, human trafficking, and arms smuggling, illegal wildlife trade generates significant economic benefits for criminal groups while undermining state authority and law enforcement effectiveness (UNODC, 2024; Wyatt, 2013).

This growing threat is reflected in INTERPOL's Operation Thunder, which resulted in the seizure of nearly 20,000 live animals and the arrest of 365 suspects across participating countries, highlighting both the scale and transnational nature of contemporary wildlife trafficking networks. Consequently, wildlife trafficking increasingly exhibits characteristics associated with transnational organized crime and maritime security threats.

From a non-traditional security perspective, wildlife trafficking poses multidimensional risks extending beyond biodiversity loss. The impacts include degradation of ecological resources, illicit financial flows, corruption, document

fraud, and the strengthening of transnational criminal organizations (Buzan et al., 1998; White, 2018). Duffy and Brockington (2022) argue that illegal wildlife trade should be understood within a broader security framework because it is closely linked to governance challenges and organized criminal activities. Consequently, the issue increasingly requires responses that combine environmental protection, law enforcement, and national security measures.

Indonesia occupies a strategic position within global wildlife trafficking networks. As one of the world's megabiodiversity countries, Indonesia possesses a vast diversity of endemic species that are highly sought after in international markets. At the same time, Indonesia's archipelagic geography, consisting of more than 17,000 islands and extensive maritime boundaries, creates opportunities for trafficking networks to utilize maritime routes for the transportation of protected species. Studies have documented the illegal trade of birds, reptiles, mammals, orchids, carnivorous plants, and other protected species through traditional markets, social media platforms, e-commerce marketplaces, and cross-border smuggling operations (Nijman et al., 2022; Padang et al., 2023; Hasanah et al., 2025).

Recent evidence suggests that maritime routes play a significant role in facilitating wildlife trafficking in Indonesia. Armstrong et al. (2023) identified the Sulu-Celebes Seas as a critical trafficking corridor connecting Indonesia, Malaysia, and the Philippines. Similarly, Triantoro et al. (2025) reported the existence of wildlife trafficking networks operating in Papua and eastern Indonesia, linking local suppliers with regional and international buyers. These routes are often characterized by limited surveillance capacity, numerous small ports, and complex maritime geography, making law enforcement operations particularly challenging.

The growing use of digital platforms has further increased the complexity of wildlife trafficking networks. Social media applications, online marketplaces, and encrypted communication platforms enable traffickers to advertise, negotiate, and distribute wildlife products with reduced risk of detection (Hinsley et al., 2016; Ingram et al., 2024). Research conducted in Indonesia demonstrates that online wildlife trade continues to expand despite existing regulatory frameworks and enforcement efforts (Padang et al., 2023; Hasanah et al., 2025). Consequently, wildlife trafficking has become increasingly interconnected with digital crime and transnational smuggling activities.

The Government of Indonesia has undertaken various initiatives to combat wildlife trafficking through biodiversity conservation programs, law enforcement operations, and international cooperation. The Ministry of Forestry's Strategic Plan 2025–2029 identifies biodiversity protection, forest security, and strengthening governance systems as strategic priorities for sustainable forest management. In addition, the Ministry's performance framework emphasizes the reduction of species threats and the strengthening of biodiversity management as key development targets. Nevertheless, the persistence of wildlife trafficking networks indicates that existing approaches remain largely conservation-oriented and have yet to be fully integrated into Indonesia's broader maritime security architecture.

Given its transnational nature, utilization of maritime routes, involvement of organized criminal networks, and multidimensional impacts on governance and biodiversity, wildlife trafficking should be recognized as a maritime security issue rather than solely a conservation challenge. Reframing wildlife trafficking within the maritime security domain provides a stronger basis for inter-agency coordination, intelligence-led enforcement, maritime surveillance, and international cooperation. Such a perspective is essential for developing a more comprehensive and effective strategy to address wildlife trafficking as a non-traditional security threat in Indonesia.

2. SWOT Analysis of Indonesia's Maritime Security Response

The effectiveness of Indonesia's response to wildlife trafficking is influenced by a combination of internal and external factors. As a transnational maritime crime, wildlife trafficking involves multiple actors, jurisdictions, transportation networks, and governance institutions. Therefore, understanding Indonesia's strategic position requires an assessment of both institutional capacities and challenges as well as opportunities and threats emerging from the external environment.

From an internal perspective, Indonesia possesses several strategic advantages in combating wildlife trafficking. First, Indonesia has a relatively comprehensive legal framework governing biodiversity conservation, protected species management, and international wildlife trade through the implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (Chotimah, 2024). Second, the country has established specialized institutions responsible for biodiversity protection, forest security, maritime surveillance, and law enforcement, including the Ministry of Forestry, Indonesian Navy, Maritime Security Agency (Bakamla), National Police, and Customs Authority. Third, the Ministry of Forestry's Strategic Plan 2025–2029 places biodiversity protection, forest security, digital transformation, and governance reform among its strategic priorities, providing a favorable policy environment for strengthening anti-trafficking measures. Furthermore, international cooperation mechanisms with ASEAN, INTERPOL, UNODC, and other regional partners provide additional institutional support for wildlife crime enforcement.

Despite these strengths, several weaknesses continue to constrain Indonesia's capacity to effectively address wildlife trafficking. The country's vast archipelagic geography presents significant monitoring challenges, particularly in remote coastal areas and small ports. Institutional fragmentation and overlapping authorities among relevant agencies often reduce operational effectiveness and information sharing. Previous studies also highlight limited intelligence integration, insufficient technological capabilities, and uneven law enforcement capacity across regions as persistent obstacles in combating wildlife trafficking networks (OECD, 2019; Adhiasto et al., 2023). In addition, enforcement efforts remain largely conservation-oriented and have not yet been fully integrated into Indonesia's broader maritime security architecture.

Externally, Indonesia faces several opportunities that can strengthen national responses against wildlife trafficking. Growing international attention toward biodiversity conservation and environmental crime has encouraged stronger regional and global cooperation. Technological advancements such as artificial intelligence, digital monitoring systems, satellite surveillance, and big-data analytics provide new tools for detecting trafficking activities and monitoring online wildlife trade. The increasing involvement of international organizations and conservation networks also creates opportunities for capacity building, information sharing, and joint enforcement operations.

At the same time, wildlife trafficking networks continue to evolve and adapt to enforcement measures. The expansion of e-commerce platforms, social media applications, and encrypted communication technologies has increased the complexity of wildlife trafficking operations. Strong international demand for exotic wildlife products remains a major driver of illegal trade. Furthermore, criminal organizations increasingly exploit maritime transportation routes, informal ports, and cross-border logistics systems to avoid detection. These developments create significant threats to Indonesia's biodiversity conservation efforts and maritime security interests.

Table 1. SWOT Analysis of Indonesia's Maritime Security Response to Wildlife Trafficking

Strengths	**Weaknesses**
Comprehensive legal framework supporting biodiversity protection and CITES implementation	Vast maritime territory and limited surveillance coverage
Presence of specialized institutions (Ministry of Forestry, Bakamla, Navy, Police, Customs)	Institutional fragmentation and overlapping authorities
National commitment through the Ministry of Forestry Strategic Plan 2025–2029	Limited intelligence integration and information sharing
Existing international cooperation mechanisms	Uneven enforcement capacity across regions
Ongoing digital transformation initiatives	Wildlife trafficking still treated primarily as a conservation issue
Opportunities	**Threats**
Strengthening regional and international cooperation	Expansion of transnational organized crime networks
Development of digital surveillance and AI technologies	Increasing use of social media and e-commerce platforms
Capacity-building support from international organizations	High international demand for wildlife products

Growing global concern over biodiversity conservation	Utilization of maritime smuggling routes and informal ports
Expansion of intelligence-sharing mechanisms	Large-scale international criminal operations evidenced by INTERPOL wildlife crime investigations

Based on the analysis above, the strategic factors influencing Indonesia's maritime security response to wildlife trafficking can be summarized in the SWOT matrix presented in Table 1. The SWOT analysis demonstrates that Indonesia possesses considerable institutional and policy strengths. However, these strengths must be integrated through more coordinated maritime security mechanisms to effectively address increasingly sophisticated wildlife trafficking networks. The next section formulates strategic alternatives by combining the identified strengths, weaknesses, opportunities, and threats.

3. Formulation of Strategic Alternatives

The SWOT analysis indicates that Indonesia possesses considerable institutional, legal, and policy capacities to address wildlife trafficking. However, these strengths have not yet been fully integrated into a comprehensive maritime security framework capable of responding to increasingly sophisticated wildlife trafficking networks. At the same time, rapid technological development, growing international cooperation, and heightened global concern for biodiversity conservation create strategic opportunities that can be leveraged to strengthen Indonesia's response. Conversely, the expansion of transnational criminal networks, increasing online wildlife trade, and the exploitation of maritime routes by traffickers continue to pose significant challenges.

Based on the interaction between internal and external factors, four categories of strategic alternatives were formulated: Strength–Opportunity (SO), Weakness–Opportunity (WO), Strength–Threat (ST), and Weakness–Threat (WT) strategies.

a. *Strength–Opportunity (SO) Strategies*

SO strategies seek to utilize Indonesia's existing strengths to capitalize on emerging opportunities. Indonesia already possesses a legal framework supporting biodiversity conservation, specialized enforcement institutions, and growing international cooperation mechanisms. These strengths can be combined with advances in digital technology and regional collaboration to improve enforcement effectiveness.

The first strategic alternative is the establishment of a National Wildlife Crime Intelligence Fusion Center. This institution would integrate intelligence information from the Ministry of Forestry, Maritime Security Agency (Bakamla), Indonesian Navy, National Police, Customs, and other relevant agencies. The center would facilitate intelligence sharing, risk analysis, trafficking route mapping, and coordination of enforcement operations. Similar intelligence-led approaches have been widely recognized as effective mechanisms for combating transnational organized crime and environmental crime (OECD, 2019; UNODC, 2024; Putri, 2024).

The second strategic alternative is the development of an AI-Based Wildlife Trade Surveillance System. This system would utilize artificial intelligence, machine learning, and big-data analytics to monitor online wildlife trade activities across social media platforms, e-commerce marketplaces, and digital communication channels. Such an approach is increasingly important given the rapid expansion of online wildlife trafficking networks documented in Indonesia and other countries (Ingram et al., 2024; Hasanah et al., 2025).

b. ***Weakness–Opportunity (WO) Strategies***

WO strategies aim to address existing weaknesses by taking advantage of external opportunities. One of Indonesia's major weaknesses is fragmented institutional coordination and uneven enforcement capacity across regions. At the same time, international organizations and regional cooperation frameworks provide opportunities for capacity building and institutional strengthening.

Accordingly, a third strategic alternative involves the creation of an Integrated Maritime Wildlife Enforcement Task Force. This task force would bring together maritime security agencies, forestry law enforcement units, customs authorities, and police investigators within a coordinated operational framework. Joint patrols, integrated investigations, and shared operational protocols would improve enforcement efficiency, particularly in trafficking hotspots such as the Sulu-Celebes Seas, eastern Indonesia, and Papua.

Another important WO strategy is strengthening professional training and technical assistance through partnerships with ASEAN, INTERPOL, UNODC, and international conservation organizations. Such cooperation can improve investigative capabilities, digital forensic expertise, and intelligence analysis related to wildlife trafficking.

c. ***Strength–Threat (ST) Strategies***

ST strategies utilize Indonesia's strengths to mitigate external threats. The increasing sophistication of wildlife trafficking networks requires stronger law enforcement measures capable of disrupting not only traffickers but also the financial structures supporting illegal trade.

Therefore, a fourth strategic alternative is the implementation of a Financial Investigation and Asset Recovery Approach. Wildlife trafficking should be investigated not only as an environmental crime but also as a financial crime linked to money laundering and illicit financial flows. By integrating financial intelligence agencies and anti-money laundering mechanisms into wildlife crime investigations, authorities can target criminal profits, confiscate assets, and disrupt trafficking networks more effectively. This approach has been increasingly promoted in international efforts to combat organized environmental crime.

Indonesia's existing diplomatic and security cooperation mechanisms can also be utilized to strengthen cross-border enforcement and intelligence-sharing initiatives with neighboring countries, particularly Malaysia, the Philippines, Papua New Guinea, and Australia.

d. ***Weakness–Threat (WT) Strategies***

WT strategies focus on minimizing vulnerabilities while reducing exposure to external threats. Indonesia's vast maritime territory, numerous small ports, and limited surveillance coverage create vulnerabilities that are frequently exploited by wildlife trafficking networks.

To address these challenges, this study proposes the establishment of an ASEAN Maritime Wildlife Security Cooperation Framework. This framework would facilitate coordinated monitoring, information exchange, joint operations, and legal cooperation among ASEAN member states. Considering that many wildlife trafficking routes operate across national boundaries, regional collaboration is essential for improving detection and enforcement outcomes.

In addition, strengthening risk-based maritime surveillance systems in vulnerable ports and maritime corridors should become a priority. Enhanced surveillance technologies, integrated databases, and coordinated patrol operations can help reduce opportunities for traffickers to exploit maritime governance gaps.

The strategic alternatives generated through the SWOT matrix demonstrate that an effective response to wildlife trafficking requires a shift from a predominantly conservation-oriented approach toward an integrated maritime security strategy. The proposed alternatives emphasize intelligence integration, inter-agency coordination, digital surveillance, financial investigation, and regional cooperation as key components of a comprehensive response framework. The next section evaluates these alternatives using the Suitable, Feasible, Acceptable, and Desirable (SFAD) framework to determine the most appropriate strategic priorities for Indonesia.

4. SFAD Evaluation of Strategic Alternatives

Following the SWOT analysis, five strategic alternatives were identified to strengthen Indonesia's response to wildlife trafficking as a form of transnational maritime crime. To determine the most appropriate policy priorities, each strategy was evaluated using the Suitable, Feasible, Acceptable, and Desirable (SFAD) framework.

The SFAD framework was selected because it provides a systematic mechanism for assessing not only the strategic relevance of policy alternatives but also their operational practicality, stakeholder acceptance, and expected contribution to policy objectives. This approach is particularly relevant for wildlife trafficking, which involves multiple institutions, overlapping jurisdictions, and complex maritime governance challenges.

The assessment indicates that the National Wildlife Crime Intelligence Fusion Center and the Integrated Maritime Wildlife Enforcement Task Force obtained the highest overall scores. Both strategies directly address the principal weaknesses identified in the SWOT analysis, particularly institutional fragmentation, limited intelligence integration, and insufficient inter-agency coordination.

Table 2. SFAD Evaluation of Strategic Alternatives

Strategic Alternative	Suitable	Feasible	Acceptable	Desirable	Total
National Wildlife Crime Intelligence Fusion Center	5	4	5	5	19
Integrated Maritime Wildlife Enforcement Task Force	5	5	4	5	19
AI-Based Wildlife Trade Surveillance System	4	3	5	5	17
Financial Investigation and Asset Recovery Approach	5	4	4	5	18
ASEAN Maritime Wildlife Security Cooperation Framework	4	4	5	4	17

Note: Score range 1–5, where 5 indicates the highest level of conformity with the evaluation criteria

The National Wildlife Crime Intelligence Fusion Center is considered highly suitable because wildlife trafficking increasingly operates through complex transnational networks involving maritime routes, digital platforms, and cross-border financial transactions. Intelligence-led enforcement has become a central component of contemporary strategies against organized crime. By integrating information from the Ministry of Forestry, Maritime Security Agency, Indonesian Navy, National Police, Customs, and other relevant institutions, the proposed center would improve risk assessment, intelligence sharing, and operational coordination.

Similarly, the Integrated Maritime Wildlife Enforcement Task Force received the highest score due to its practicality and operational relevance. Existing maritime security institutions already possess legal mandates and operational capabilities that can be strengthened through joint task force arrangements. Such an approach would facilitate coordinated patrols, integrated investigations, and rapid responses in trafficking hotspots, including the Sulu-Celebes Seas, eastern Indonesia, and Papua.

The Financial Investigation and Asset Recovery Approach ranked third with a score of 18. This strategy recognizes wildlife trafficking as a profit-driven criminal enterprise. Rather than focusing solely on the seizure of wildlife specimens, law enforcement agencies would target criminal proceeds, money laundering activities, and financial networks supporting illegal trade. International experiences demonstrate that financial investigations can significantly increase the effectiveness of efforts against organized environmental crime.

Although the AI-Based Wildlife Trade Surveillance System and ASEAN Maritime Wildlife Security Cooperation Framework received slightly lower scores, both remain important supporting strategies. Digital surveillance is increasingly necessary because wildlife trafficking networks have expanded through social media, e-commerce platforms, and encrypted communication channels. Likewise, regional cooperation remains essential because many trafficking routes operate across national jurisdictions and require coordinated responses among Southeast Asian countries.

Overall, the SFAD assessment suggests that Indonesia should prioritize intelligence integration and inter-agency enforcement coordination as the foundation of its maritime security strategy against wildlife trafficking. Digital surveillance, financial investigations, and regional cooperation should subsequently function as complementary mechanisms that enhance the effectiveness of the primary strategy.

5. Recommended Maritime Security Strategy for Indonesia

The SWOT and SFAD analyses reveal that wildlife trafficking in Indonesia can no longer be viewed solely as a biodiversity conservation issue. Its transnational nature, reliance on maritime transportation networks, increasing use of digital platforms, and close association with organized criminal groups indicate that wildlife trafficking has evolved into a form of transnational maritime crime that poses significant challenges to national security, governance, and environmental sustainability.

The findings further suggest that Indonesia's primary challenge does not lie in the absence of legal instruments or responsible institutions. Instead, the main obstacle is the limited integration among intelligence systems, maritime surveillance mechanisms, law enforcement agencies, and inter-institutional coordination frameworks. Consequently, the most appropriate response is not necessarily the creation of new regulations, but rather the development of a more integrated maritime security architecture capable of addressing wildlife trafficking across multiple operational domains.

Based on the SFAD evaluation, the establishment of a National Wildlife Crime Intelligence Fusion Center emerges as the highest strategic priority. The proposed center would serve as a national platform for intelligence integration by consolidating information from the Ministry of Forestry, the Indonesian Maritime Security Agency (Bakamla), the Indonesian Navy, the National Police, Customs and Excise, the Financial Transaction Reports and Analysis Center (PPATK), and other relevant institutions. Through centralized intelligence collection and analysis, the government would be better positioned to identify trafficking networks, map smuggling routes, detect emerging threats, and support intelligence-led enforcement operations.

The second priority involves the establishment of an Integrated Maritime Wildlife Enforcement Task Force designed to strengthen operational coordination among enforcement agencies. This task force would facilitate joint patrols, coordinated investigations, intelligence-sharing mechanisms, and integrated enforcement operations in high-risk trafficking corridors. Particular attention should be directed toward vulnerable maritime areas such as the Sulu-Celebes Seas, border regions in Kalimantan, Papua, and other strategic maritime gateways frequently exploited by trafficking networks.

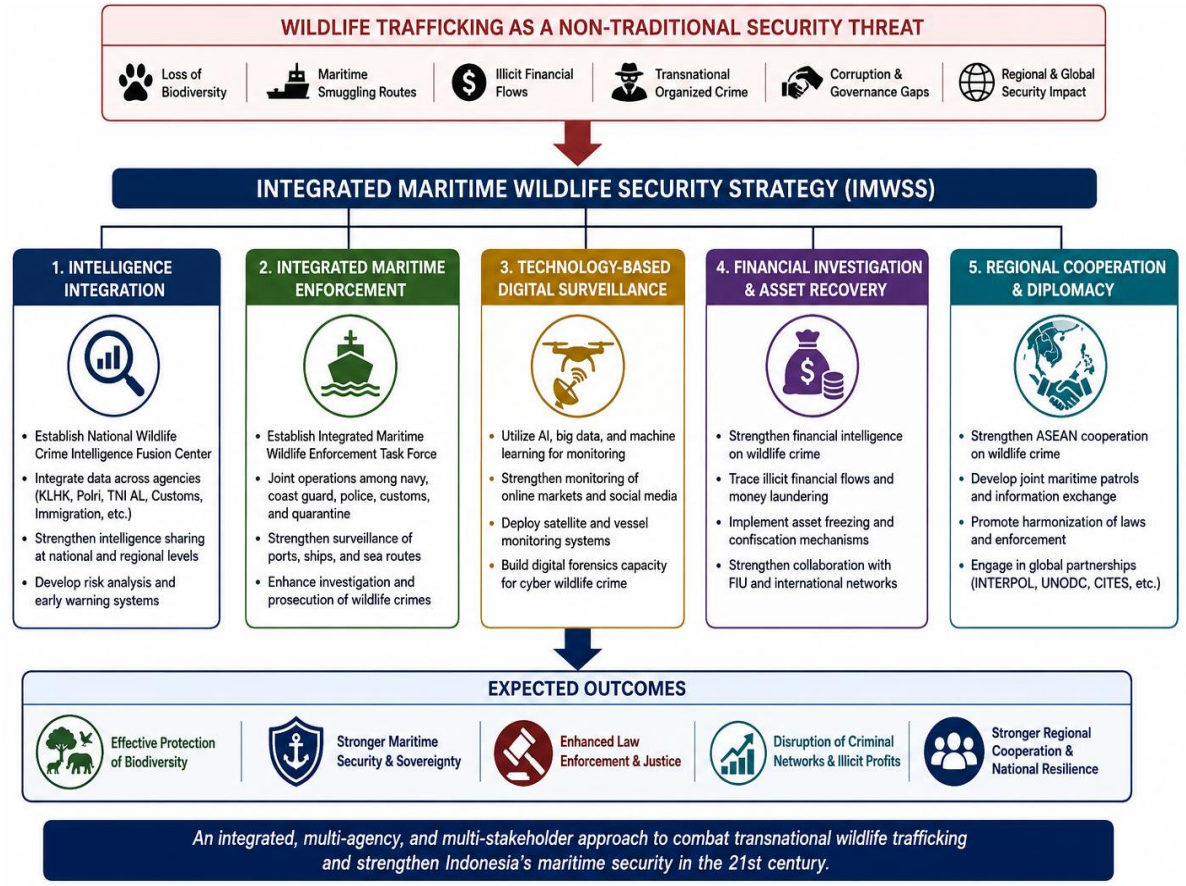

Figure 1. Integrated maritime Wildlife Security Strategy (IMWSS) for Indonesia

To complement these enforcement-oriented measures, Indonesia should accelerate the development of an AI-Based Wildlife Trade Surveillance System. Advances in artificial intelligence, machine learning, and big-data analytics offer new opportunities for monitoring wildlife trafficking activities across social media platforms, e-commerce marketplaces, and digital communication channels. Such a system would improve the government's capacity to detect illegal transactions, identify trafficking patterns, and support proactive enforcement measures in the rapidly expanding digital environment.

In addition, the study highlights the importance of adopting a Financial Investigation and Asset Recovery Approach. Wildlife trafficking is fundamentally a profit-driven criminal enterprise. Therefore, enforcement efforts should extend beyond the seizure of wildlife specimens and prosecution of individual offenders. Financial investigations targeting illicit profits, money laundering schemes, and criminal assets can significantly weaken trafficking networks by disrupting the economic incentives that sustain illegal trade. Integrating financial intelligence into wildlife crime investigations would therefore enhance the effectiveness of existing law enforcement strategies.

At the regional level, Indonesia should take a leading role in promoting an ASEAN Maritime Wildlife Security Cooperation Framework. Given that wildlife trafficking routes frequently cross national jurisdictions, effective responses require stronger regional cooperation in intelligence sharing, joint operations, legal assistance,

and capacity building. As argued by Suwarno et al. (2024), maritime security cooperation in Southeast Asia increasingly requires collaborative governance arrangements that integrate national security interests with regional security objectives. A dedicated maritime wildlife security framework within ASEAN would strengthen collective regional efforts while supporting broader objectives related to maritime governance and environmental security.

Drawing upon these findings, this study proposes an Integrated Maritime Wildlife Security Strategy (IMWSS) consisting of five mutually reinforcing pillars: (1) intelligence integration, (2) integrated maritime enforcement, (3) technology-based digital surveillance, (4) financial investigation and asset recovery, and (5) regional and international cooperation. Unlike conventional conservation-based approaches, the proposed framework recognizes wildlife trafficking as a multidimensional security challenge requiring coordinated responses across environmental, maritime, law enforcement, and national security sectors.

The proposed strategy contributes to the growing discourse on non-traditional security by repositioning wildlife trafficking within the broader context of maritime security governance. By integrating conservation objectives with maritime security mechanisms, Indonesia can enhance its capacity to protect biodiversity, strengthen maritime domain awareness, disrupt transnational criminal networks, and improve national resilience. Ultimately, addressing wildlife trafficking through a comprehensive maritime security framework offers a more adaptive and effective response to one of the most complex transnational threats facing Indonesia today.

E. CONCLUSIONS

This study examined wildlife trafficking in Indonesia from the perspective of non-traditional security and maritime security. The findings demonstrate that wildlife trafficking can no longer be viewed solely as a biodiversity conservation issue. Its transnational nature, reliance on maritime transportation routes, growing utilization of digital platforms, and links to organized criminal networks indicate that wildlife trafficking has evolved into a form of transnational maritime crime with significant implications for national security, environmental sustainability, governance, and law enforcement.

The analysis reveals that Indonesia possesses considerable strengths in addressing wildlife trafficking, including a relatively comprehensive legal framework, specialized institutions responsible for biodiversity protection and maritime security, and increasing international cooperation. However, several challenges continue to hinder effective enforcement, including institutional fragmentation, limited intelligence integration, uneven enforcement capacity, and the vast maritime territory that creates opportunities for trafficking networks to operate across multiple jurisdictions. At the same time, rapid technological developments, expanding international cooperation, and growing global concern regarding biodiversity conservation provide important opportunities for strengthening Indonesia's response.

The SWOT analysis identified a range of strategic alternatives, while the SFAD evaluation demonstrated that intelligence integration and inter-agency coordination constitute the most critical priorities for improving Indonesia's capacity to combat wildlife trafficking. The establishment of a National Wildlife Crime Intelligence Fusion Center and an Integrated Maritime Wildlife Enforcement Task Force emerged as the most suitable and feasible strategies for addressing existing institutional and operational challenges. These strategies can be further strengthened through digital surveillance systems, financial investigation mechanisms, and enhanced regional cooperation.

The principal contribution of this study lies in its reconceptualization of wildlife trafficking from a conventional conservation issue into a maritime security issue. By positioning wildlife trafficking within the broader framework of transnational maritime crime and non-traditional security, this study proposes an Integrated Maritime Wildlife Security Strategy (IMWSS) consisting of five mutually reinforcing pillars: intelligence integration, integrated maritime enforcement, technology-based digital surveillance, financial investigation and asset recovery, and regional and international cooperation. This framework provides a more comprehensive approach for addressing wildlife trafficking by combining environmental protection objectives with maritime security governance and law enforcement strategies.

From a policy perspective, the findings suggest that Indonesia should move beyond a predominantly conservation-oriented approach and adopt a more integrated security framework capable of addressing wildlife trafficking across maritime, digital, and financial domains. Strengthening intelligence-led enforcement, improving maritime domain awareness, expanding inter-agency cooperation, and enhancing regional collaboration within ASEAN are essential to disrupting trafficking networks and protecting Indonesia's biodiversity resources. Such efforts would not only contribute to biodiversity conservation but also strengthen national resilience and maritime security in the face of increasingly complex transnational threats.

Future studies may further enrich this discussion through empirical investigations involving law enforcement agencies, maritime security institutions, and wildlife crime practitioners. Quantitative assessments of trafficking routes, economic losses, and institutional effectiveness would also provide valuable insights for strengthening evidence-based policymaking in the field of maritime security and wildlife crime prevention.

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