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## "DATA ANALYSIS OF THE ILLEGAL DISTRIBUTION OF PLANTS AND WILDLIFE IN MALUKU"

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### Abstract

*This study aims to uncover trends in the illegal trade of plants and wildlife (FSW) in Maluku during the 2020–2024 period and identify influencing factors. Data were obtained from the Maluku Natural Resources Conservation Agency (BKSDA) and community questionnaires in Ambon City and Bula City. The research method used descriptive and qualitative statistical analysis to uncover patterns of illegal trade and their impacts on biodiversity. The results showed a significant increase in cases of illicit trade from 25 cases (2020) to 61 cases (2024), with the dominant mode being cross-regional transportation. Bird species, especially parrots such as the Moluccan Cockatoo (*Cacatua moluccensis*) and the Moluccan Lory (*Eos bornea*), dominated the trade (74.65%), followed by reptiles such as the Hawksbill Turtle (*Eretmochelys imbricata*). Interesting findings include the trade in animal parts, such as deer antlers and turtle eggs, which indicates an evolving threat to biodiversity. The main driving factors include economic motivation, market demand, weak supervision, and low public awareness. Law enforcement constraints such as limited personnel and technology also exacerbate the problem. Mitigation efforts undertaken by the Maluku Natural Resources Conservation Agency (BKSDA), including patrols and outreach, have had a positive impact, but need to be strengthened with a holistic approach based on technology and community empowerment.*

**Keywords:** Illegal trafficking, Plants and wildlife, Conservation, Maluku, Law enforcement.

## INTRODUCTION

The illegal trade in plants and wildlife has become a commercial activity that violates state laws. This trade has caused transnational problems lurking in the wild. In addition to being an organized crime at the local, national, and international levels, the illegal trade in plants and wildlife has become a large-scale crime because it offers promising profits with relatively low risks due to weak legal regulations and lenient sanctions. Many methods allow perpetrators of illegal plant and wildlife trade to easily obtain wildlife and plants (Guntur, 2019). Compared to other crimes, the circulation of wild plants and animals is relatively easy to cross between provinces and islands in Indonesia, even reaching national borders. Airports and seaports are strategic points for wildlife circulation routes where animals are generally smuggled by bus, car, tucked into personal belongings, or package services with false statements to bypass inspections. Smuggling between provinces at the border or between islands through small ports or docks often escapes the supervision of authorized officers. Officers at airports or ports are often less careful in checking passengers' luggage (Trinirmalaningrum, 2016)

Illegal wildlife trade refers to the trade, possession, or movement of protected plant and animal specimens without proper permits, which can harm biodiversity. According to the Minister of Environment and Forestry Regulation Number 15 of 2023, this trade includes the collection, transportation, and maintenance of specimens taken from their natural habitat or from captive breeding. Illegal wildlife trade is a violation of the law and has the potential to lead to the extinction of endangered species (Hanif, 2015). Several protected plants and wildlife are frequently targeted by illegal trafficking in Maluku. Birds, cuscuses, and various reptiles are examples of animals frequently traded illegally, while endangered plants include rare orchids and endemic plants. Over the past six years, the Maluku Natural Resources Conservation Agency (BKSDA) has handled 143 cases of wildlife and plant trafficking, including 81 cases of guidance, 30 cases of legal proceedings, and 32 cases of investigation. These hundreds of cases were handled in collaboration with various stakeholders, such as the police, the Indonesian National Armed Forces (TNI), the Fire Department, and port officials.

The use of wild plants and animals in Indonesia is crucial, both economically, socially, and culturally. With its abundant biodiversity, the country has significant potential for sustainable use of natural resources. However, challenges in management and protection remain. The illicit trade in protected plants and animals is a critical problem accelerating the extinction of many endemic species in Indonesia. The primary driving factors are high profit margins coupled with low levels of law enforcement, fueling the rise of this criminal practice. This illegal activity is systemic, involving extensive networks ranging from local hunters to transnational exporters. Furthermore, many cases of illegal wildlife trafficking have been implicated by officials and security forces. This criminal activity has evolved into a highly organized network, operating extensively and continually evolving its smuggling methods (Doly, 2009).

According to (Indrawan 2022), high market demand for endangered species is the primary cause of the rampant illegal trade, as hunters continue to supply these animals to meet consumer demand. This phenomenon demonstrates two critical interconnected aspects: (1) persistent market demand, and (2) weak oversight systems, particularly in forested areas. Economic motives are the primary

driver, with perpetrators viewing protected animals as high-value commodities.

## RESEARCH METHODS

The study employs a time series analysis to examine trends in the illegal trade of wildlife and plants in Maluku, using statistical techniques to identify patterns in data collected over time. This method, as described by Wahyudi, aims to track the progression of illegal activities and visualize data using RStudio. Additionally, qualitative analysis is applied to assess factors influencing the illegal trade, utilizing simple spatial analysis to outline key aspects such as commonly traded species, conservation status, smuggling routes (land, sea, and air), transportation methods, and hotspots of illegal activity. The research also incorporates the Guttman Scale to measure public awareness of illegal wildlife trafficking, presenting binary responses (e.g., "yes/no" or "true/false") for clear-cut data interpretation. Positive responses are scored as 1 (100%), while negative responses are scored as 0 (0%), enabling straightforward percentage-based analysis of public knowledge and attitudes (Iskani, 2021).

$$P = \frac{F}{n} \times 100\%$$

P: Presentation

F: Frequency

n: Number of samples

With the following percentage criteria (Arikunto, 2006):

- Categorized as good, if the answer is 76-100%
- Categorized as sufficient, if the answer is 75-60%
- Categorized as insufficient, if the answer is <60%

## RESULTS AND DISCUSSION

### Trends in Illegal Distribution of Plants and Wildlife in Maluku from 2020 to 2024

Based on data from the Maluku Natural Resources Conservation Agency (UPT BKSDA Maluku), 220 cases of illegal wildlife and plant trafficking were identified between 2020 and 2024. These cases included illegal possession, arrests of traffickers, and the translocation of wildlife from outside the agency's jurisdiction. The high number of cases indicates that illegal biodiversity trade remains rampant in Maluku, a region known for its rich biodiversity in Indonesia. Illegal possession cases were often uncovered during community patrols, suggesting a lack of legal awareness or economic pressures driving locals to keep wildlife without permits. This highlights the need for public education and community empowerment programs to reduce dependence on illegal natural resources. Meanwhile, arrests at ports and on ships indicate organized smuggling operations exploiting official logistics routes. Additionally, the translocation of wildlife from outside Maluku confirms that the region serves as a destination or transit point for illegal trade, both domestically and potentially across borders. These findings underscore the urgency of strengthening enforcement, improving monitoring systems, and fostering community involvement to combat wildlife trafficking effectively.

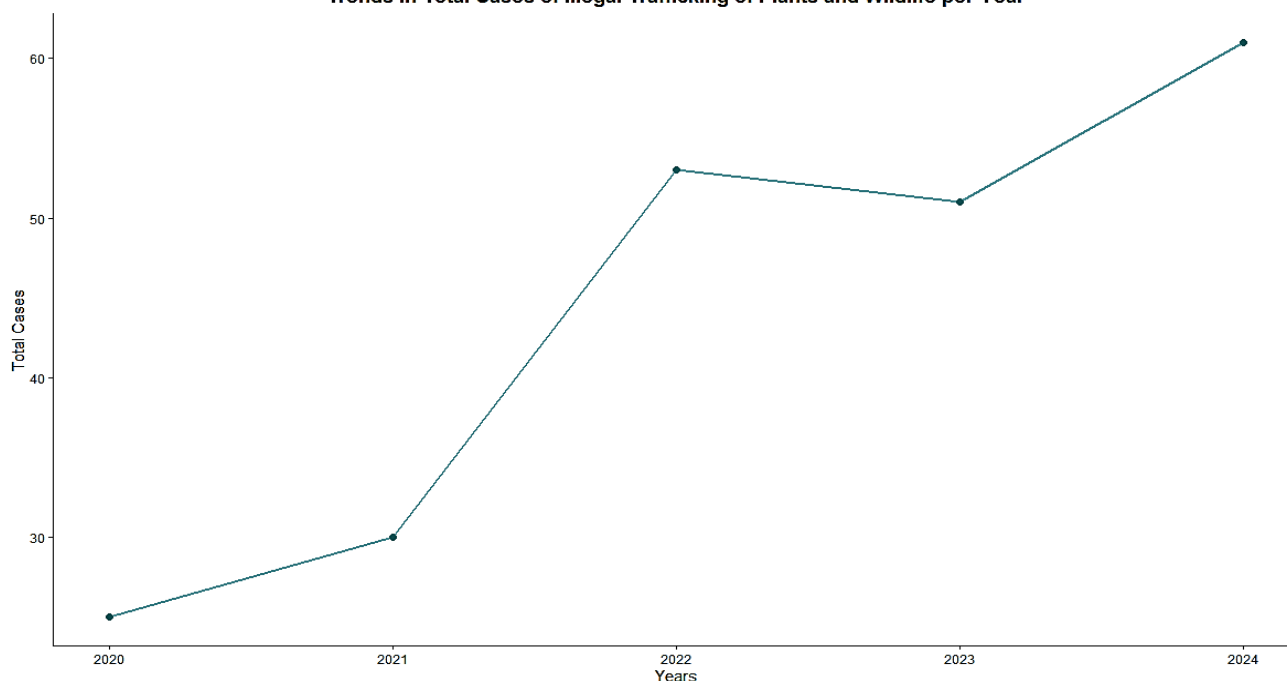
Years	Ownership Cases	Traffic Cases	Translocation	Total
2020	11	12	2	25
2021	3	15	12	30

2022	12	22	19	53
2023	5	26	20	51
2024	6	40	15	61

Total				220
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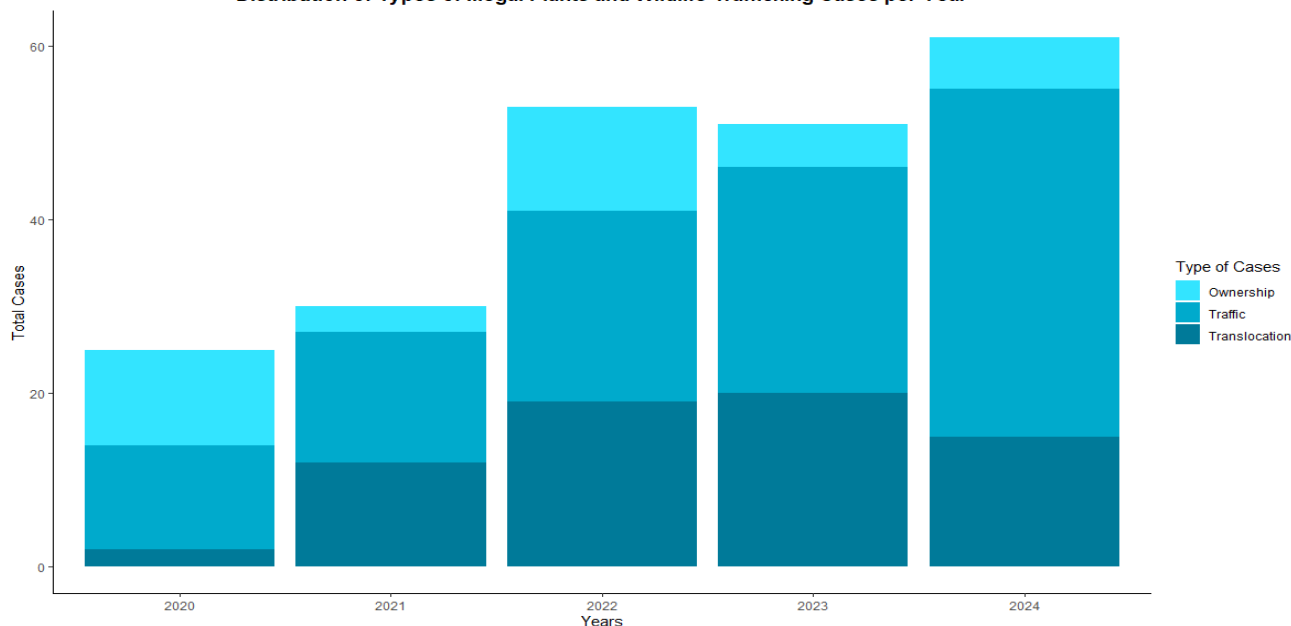
**Source:** Annual Report on the Monitoring of Illegal Distribution of TSL by BKSDA Maluku

**Trends in Total Cases of Illegal Trafficking of Plants and Wildlife per Year**



**Chart 1. Number of Cases 2020-2024**

**Distribution of Types of Illegal Plants and Wildlife Trafficking Cases per Year**



**Chart 2. Distribution of Number of Cases by Type**

Based on Charts 1 and 2, a significant increase in illegal wildlife trafficking cases can be seen from 2020 to 2024. In 2020, a total of 25 cases were recorded, dominated by possession (11 cases) and arrest (12 cases), while translocation accounted for only 2 cases. However, in 2021, this number increased to 30 cases, with a marked change in composition, with transportation predominating (15 cases), followed by translocation (12 cases), while possession dropped drastically to only 3 cases. The upward trend became even more pronounced in 2022, when the total number of cases jumped

to 53, with transportation being the leading offense (22 cases), followed by translocation (19 cases), and possession (12 cases). Although there was a slight decrease in 2023 to 51 cases, the dominant pattern of transportation (26 cases), followed by translocation (20 cases), while possession cases dropped sharply (5 cases). The highest peak occurred in 2024 with 61 cases, with transportation reaching a record high (40 cases), far surpassing translocation (15 cases) and possession (6 cases). This data indicates a shift in the modus operandi of environmental criminals, from

simply illegal possession to cross-regional trade and distribution. The increase in transportation and translocation cases also indicates

that illegal trade networks are becoming increasingly organized, requiring more intensive action by authorities.

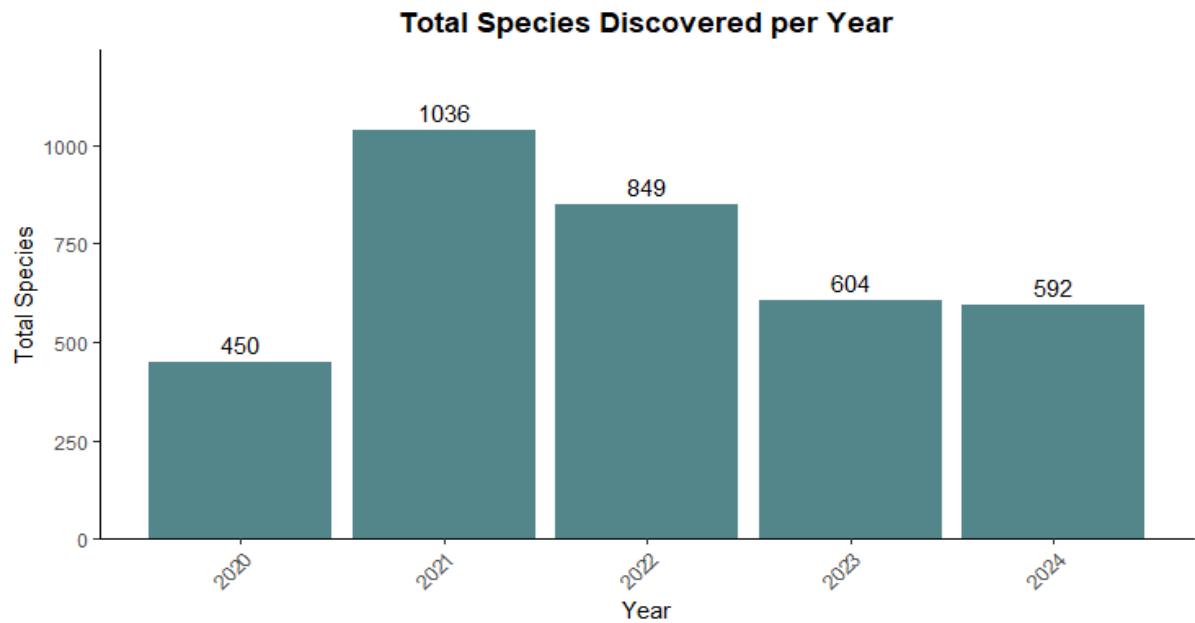


Chart 3. Total Species

A comparison of Chart 1 and 2, which show the trend in illegal trafficking cases, and Chart 3, which displays the number of species recovered, reveals an interesting dynamic. Although environmental crime cases increased significantly from 2020 to 2024, the number of individual species recovered fluctuated, with a downward trend.

In 2020, when 25 cases of illegal trafficking were recorded, 450 species were recovered. A sharp spike occurred in 2021, when cases

rose to 30, while species recovered jumped to 1,036. This may indicate that law enforcement activities in that year succeeded in uncovering large-scale trafficking networks, resulting in more species seizures. However, this trend has not continued in subsequent years. Although cases continued to increase—to 53 in 2022, 51 in 2023, and 61 in 2024—the number of species sightings actually decreased drastically: 849 individuals (2022), 604 (2023), and 592 (2024).

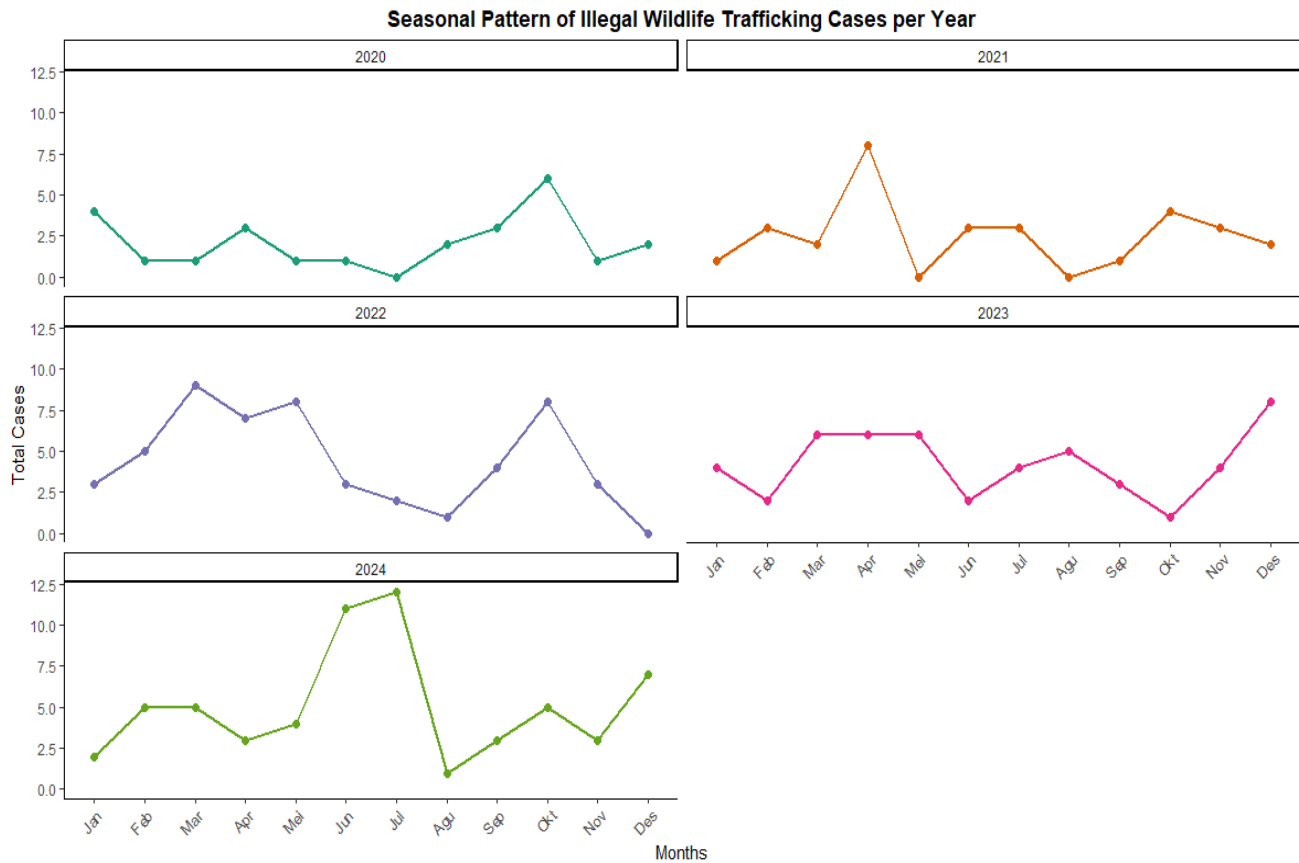


Chart 4. Seasonal Patterns of Illegal Wildlife Trafficking

### Wildlife Traded Between 2020 and 2024

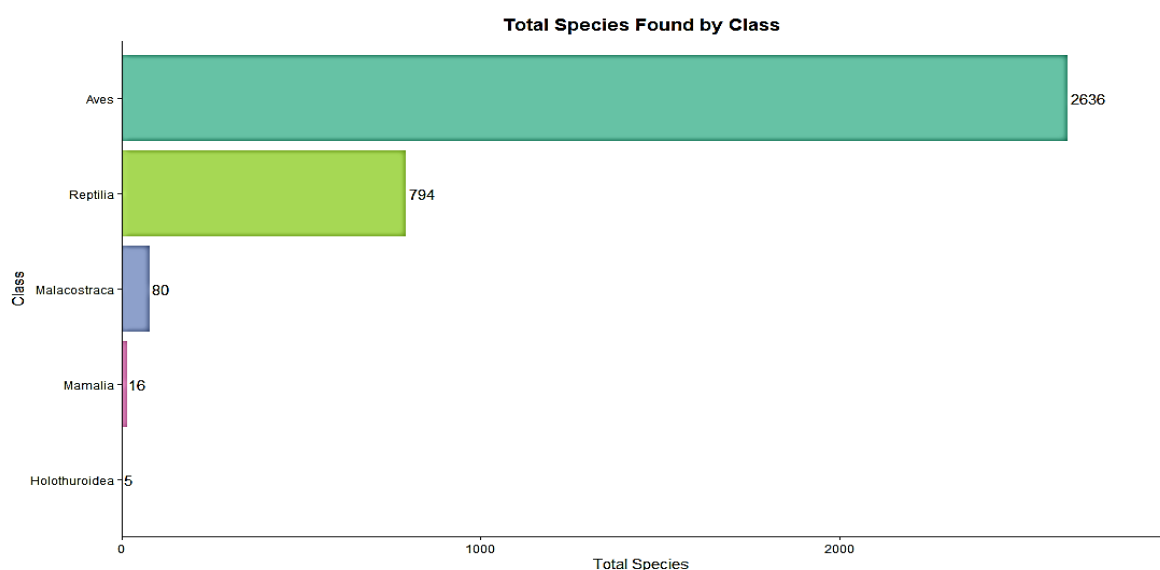
Findings of illegally traded wildlife in Maluku, based on annual report data are as follows:

Local Name	Scientific Name	IUCN Status	Amount
Parrot	<i>Gracula religiosa</i>	LC	2
Papuan Parrot	<i>Mino dumontii</i>	LC	49
Buru Parrot	<i>Tanygnathus gramineus</i>	VU	2
Thick-billed Parrot	<i>Tanygnathus megalorhynchus</i>	LC	2
Aru Monitor Lizard	<i>Varanus beccari</i>	LC	77
Blue-tailed Parrot	<i>Varanus doreanus</i>	LC	1
Black Monitor Lizard	<i>Varanus beccari</i>	DD	97
Moluccan Monitor Lizard	<i>Varanus indicus</i>	LC	17
Sula Blibong	<i>Streptocitta albertinae</i>	NT	1
Estuarine Crocodile	<i>Crocodylus porosus</i>	LC	2
King Bird-of-Paradise	<i>Cicinnurus roratus</i>	LC	3
Rotan Magpie-robin	<i>Pitohui uropygialis</i>	LC	6
Timor Magpie-robin	<i>Philemon buceroides</i>	LC	2
Dugong	<i>Dugong dugon</i>	VU	1
Small Fish Eagle	<i>Ichthyophaga humilis</i>	NT	2
Papuan Butcherbird	<i>Craticus cassicus</i>	VU	3
Buffalo Starling	<i>Acridotheres javanicus</i>	VU	1
Nias Starling	<i>Acridotheres tristis</i>	CR	1
Papuan Starling	<i>Pitohui dichrous</i>	CR	1
White Starling	<i>Acridotheres melanopterus</i>	CR	1
Papuan Hornbill	<i>Rhyticeros plicatus</i>	LC	5
Panana Lizard	<i>Tiliqua gigas</i>	LC	120
Yellow-crested Cockatoo	<i>Cacatua sulfurea</i>	CR	40
Mascot Cockatoo	<i>Cacatua galerita</i>	LC	187
Moluccan Cockatoo	<i>Cacatua moluccensis</i>	VU	223
White Cockatoo	<i>Cacatua alba</i>	EN	36

King Cockatoo	<i>Probosciger aterrimus</i>	NT	10
Tanimbar Cockatoo	<i>Cacatua goffini</i>	NT	50
Tree Kangaroo	<i>Dendrolagus</i>	VU	5
Ground Kangaroo	<i>Thylogale brunii</i>	VU	6
Purple-naped Chattering Lory	<i>Lorius domicella</i>	EN	9
Ternate Chattering Lory	<i>Lorius garrulus</i>	VU	223
Cassowary	<i>Casuarus casuarus</i>	LC	1
Willow-billed Cassowary	<i>Casuarus casuarus</i>	LC	3
Black Macaque	<i>Macaca nigra</i>	EN	2
Canary Crab	<i>Birgus latro</i>	VU	80
Ambon Tortoise	<i>Cuora amboinensis</i>	EN	42
Land Tortoise	<i>Testudines</i>	CR	1
Aru Parrot	<i>Chalcopsitta scintilata</i>	LC	45
Bayan Parrot	<i>Eclectus roratus</i>	LC	129
Brown Parrot	<i>Chalcopsitta duivenbodel</i>	LC	3
Black Parrot	<i>Chalcopsitta atra</i>	LC	9
Purple-necked Parrot	<i>Eos squamata</i>	LC	65
Black-capped Parrot	<i>Lorius lory</i>	LC	123
Parrot Maluku	<i>Eos bornea</i>	LC	1000
Red-cheeked Lory	<i>Geoffroyus geoffroyi</i>	LC	12
Female Red-cheeked Lory	<i>Psittinus cyanurus</i>	LC	1
Ambon King Lory	<i>Alisterus amboinensis</i>	LC	1
King Lory	<i>Aprosmictus jonquillaceus</i>	EN	1
Black-winged Lory	<i>Eos cyanogenia</i>	VU	1
Tanimbar Lory	<i>Eos reticulata</i>	NT	224
Blue-eared Lory	<i>Eos semilarvata</i>	NT	8
Hawksbill Turtle	<i>Eretmochelys imbricata</i>	CR	258
Green Lory	<i>Ducula aenea</i>	NT	4
Yellow-green Lorikeet	<i>Trichoglossus flavoridis</i>	LC	7
Mauve Lorikeet	<i>psitteuteles goldie</i>	LC	2

Rainbow Lorikeet	<i>Trichoglossus haematodus</i>	LC	131
Timor Deer	<i>Cervus timorensis</i>	VU	2
Sailfish	<i>Hydrosaurus amboinensis</i>	VU	31
Halmahera Lorikeet	<i>Hydrosaurus weberi</i>	VU	13
Milk Sea Cucumber	<i>Holothuria nobilis</i>	VU	5
Gecko	<i>Gecko gecko</i>	LC	8
Ground Boa	<i>Candoia aspera</i>	LC	1
Ground Snake	<i>Candoia paulsonii</i>	LC	4

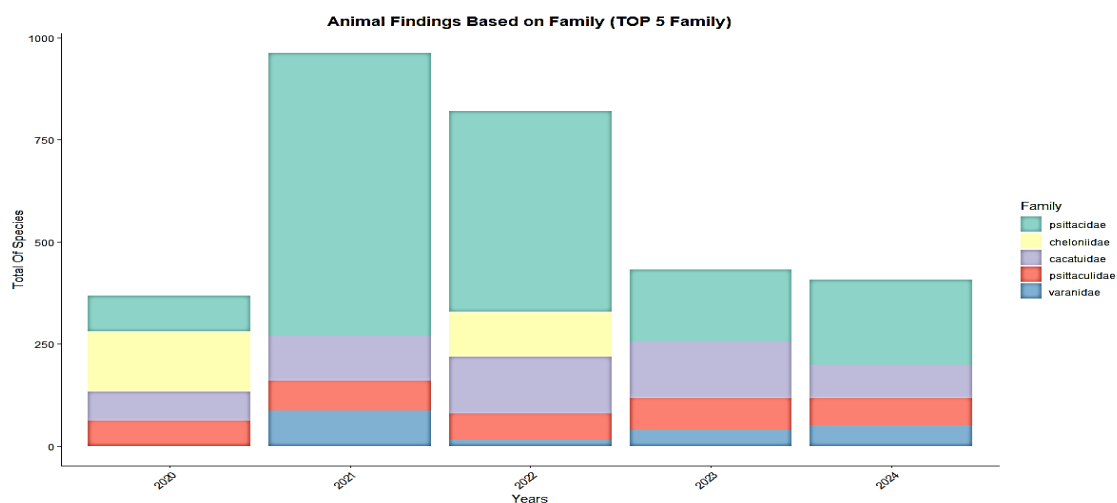
Patola Snake	<i>Morelia amethystina</i>	NT	1
Brown Python	<i>Boiga irregularis</i>	LC	3
Green Python	<i>Morelia varidis</i>	LC	106
Reticulated Python	<i>Phyton reticulatus</i>	LC	3
Patola Python	<i>Tiliqua gigas evanescens</i>	LC	7
Jeweled Python	<i>Morelia amethystina</i>	LC	2
Flowering Wallaby	<i>Ptilinnopus melannospilus</i>	LC	7
<b>Total</b>			<b>3.531</b>



**Chart 5. Total Species Found by Class**

The distribution of species involved in illegal trade during the 2020–2024 period shows a highly unequal pattern across taxonomic classes. The class Aves (birds) dominates absolutely with 2,636 individuals (74.65% of total sightings), a figure 3.3 times greater than the second-largest class, Reptilia (794 individuals/22.49%). This dominance indicates very high hunting pressure on bird

populations, likely driven by market demand for pets, collections, or other commercial purposes. Meanwhile, the classes Malacostraca (80 individuals/2.27%), Mammalia (16 individuals/0.45%), and Holothuroidea (5 individuals/0.14%) collectively account for only 2.86% of total sightings, indicating that illegal trade is more focused on specific vertebrates.

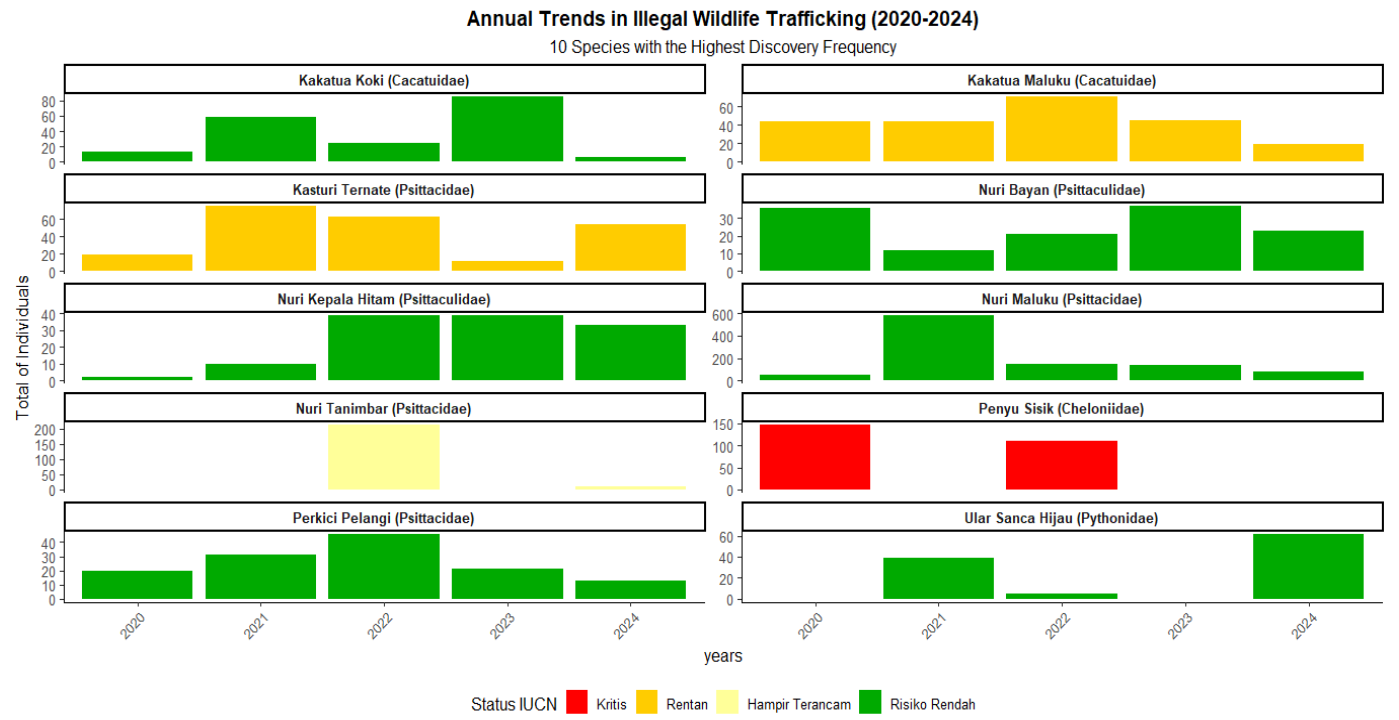


**Chart 6. Annual Findings Based on Family**



Analysis of data on illegal wildlife trafficking from 2020 to 2024 identified five families as the most frequently affected: Psittacidae, Cheloniidae, Cacatuidae, Psittaculidae, and Varanidae, with trade patterns varying annually. In 2020, Cheloniidae dominated with 148 individuals, likely due to high demand for hawksbill turtles for their carapaces and meat. However, a significant shift occurred in 2021, when Psittacidae numbers jumped to 692 individuals, indicating a shift in market preferences or increased trade in parrots. Psittacidae's dominance continued in subsequent years, albeit with fluctuations in numbers: 491 individuals (2022), 177 individuals (2023), and 209 individuals (2024), possibly influenced by law enforcement,

population scarcity, or changes in market demand. Meanwhile, Cacatuidae showed a fairly stable trend, increasing from 70 individuals (2020) to 139 individuals (2022 and 2023), before declining to 82 individuals in 2024. This decline could indicate the success of control efforts or a decline in the wild population due to overexploitation. Varanidae, as a representative reptile, showed a fluctuating pattern, with the highest peak in 2021 (87 individuals) and 2024 (52 individuals), but then dropped drastically to 16 individuals in 2022, indicating that the monitor lizard trade is dynamic and may be influenced by momentary demand or changes in smuggling strategies.



Sumber: Data Penemuan Satwa Illegal

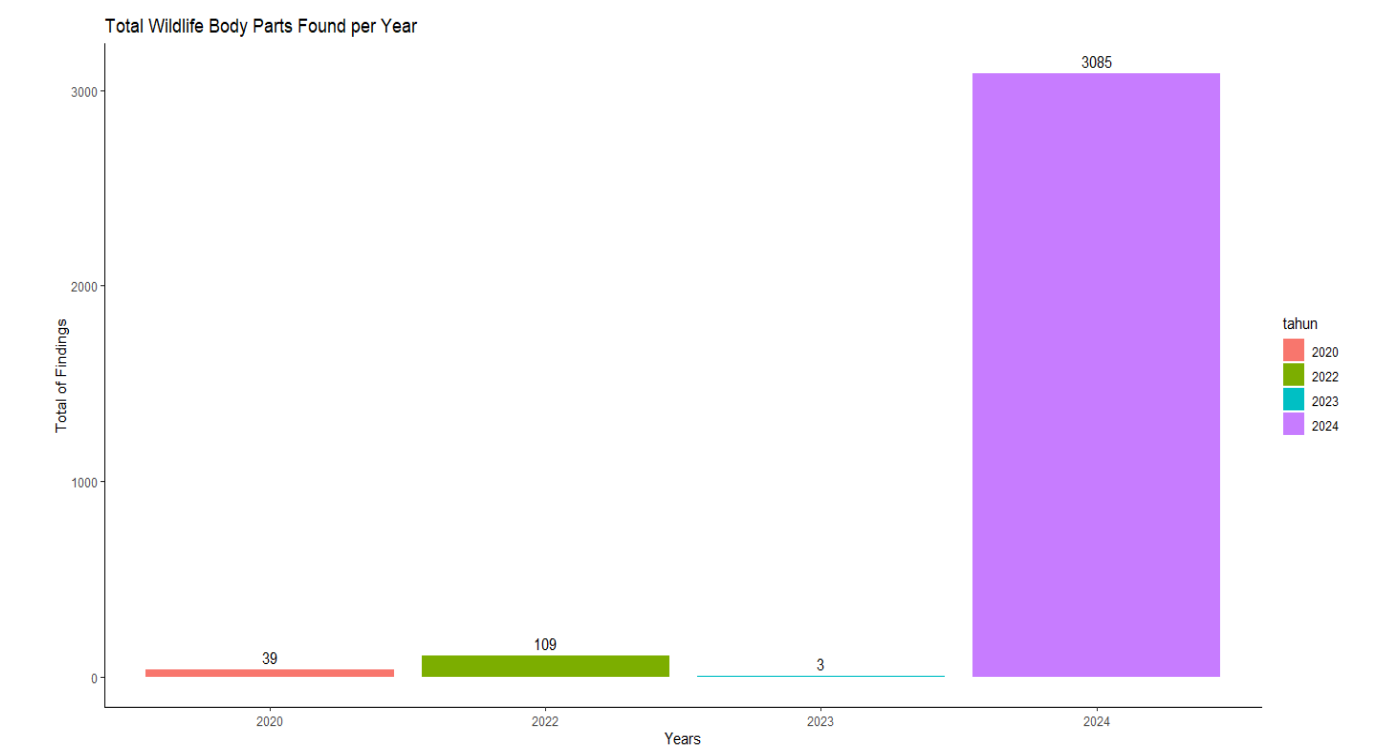
Chart 7. Species Discovery Frequency

Data analysis for the 2020-2024 period shows a significant trend in the illegal trafficking of 10 wildlife species in Maluku, dominated by the Psittacidae (parrots), Cheloniidae (hawksbill turtles), and Pythonidae (pythons). The Hawksbill Turtle (*Eretmochelys imbricata*), which is classified as Critically Endangered (CR), is the most concerning, with sightings of more than 100 individuals per year in 2020-2021, driven by demand for its scales for accessories and consumption.

Pattern-billed birds, such as the Moluccan Lory (*Eos bornea*), which is classified as Low Risk (LC), actually saw the highest numbers (more than 600 individuals in 2021), indicating the exploitation of non-threatened species for the pet market. A similar phenomenon was seen for the Tanimbar Lory (Near Threatened) with more than

200 individuals (2021-2022), as well as vulnerable species such as the Moluccan Cockatoo and Chattering Lory, which continue to be hunted. Interesting findings indicate that illegal trade targets not only threatened species but also endangered species such as the Koki Cockatoo and the Green Python, likely due to aesthetic value and market demand. The highest fluctuation in sightings occurred in 2021-2022, possibly due to increased law enforcement or trade activity. The decrease in sightings in 2024 could be due to two factors: a decline in natural populations due to overexploitation or increased monitoring effectiveness. Weak monitoring systems and legal loopholes also contribute to the prevalence of this practice, despite the conservation status of various species being protected by national and international regulations.

Total of Body Parts Found Between 2020 and 2024



Analysis of wildlife body parts recorded in 2020 revealed 39 findings, including 11 pairs of Timor deer antlers, 22 Maluku scrub finch eggs, one stuffed turtle shell, and 5 kilograms of deer jerky. In 2022, 109 findings were made, consisting of 103 turtle eggs and three pairs of deer antlers. In 2023, three stuffed birds of paradise were found. In 2024, five pairs of deer antlers, 80 kilograms of deer meat, and 3,000 butterfly specimens were found.

Analysis shows that the illegal trade in animal parts in Indonesia is dominated by: (1) 3,000 stuffed butterflies as a decorative commodity (Kurniawan & Samani, 2023); (2) 106 turtle eggs for consumption, which threaten population regeneration (Tarigan et al., 2020); and (3) deer products in the form of meat (80 kg), antlers (19 pairs), and jerky (5 kg) (Manik et al., 2020). Other findings include stuffed birds of paradise and eggs of the Maluku Gosong, as high-value endemic species (ProFauna Indonesia, 2022), as well as turtle carapace, although in limited quantities (UNODC, 2024). These data reveal the complexity of the illegal trade that spans the entire value chain, demanding an integrated approach including law enforcement, critical habitat monitoring, and public education to reduce demand (Larasati, 2019).

Number of Plants Discovered Between 2020 and 2024

Years	Findings Plants	Satuan	Jumlah
2020	Gaharu ( <i>Aquilaria sp.</i> )	Kg	100
2021	-		
2022	-		
2023	Santigi ( <i>Phempis acidula</i> )	Buah	18

	Gaharu Kemedangan ( <i>Aquilaria sp.</i> )	Kg	180
2024	-		

**Source:** Annual Report on the Monitoring of Illegal Distribution of TSL by BKSDA Maluku

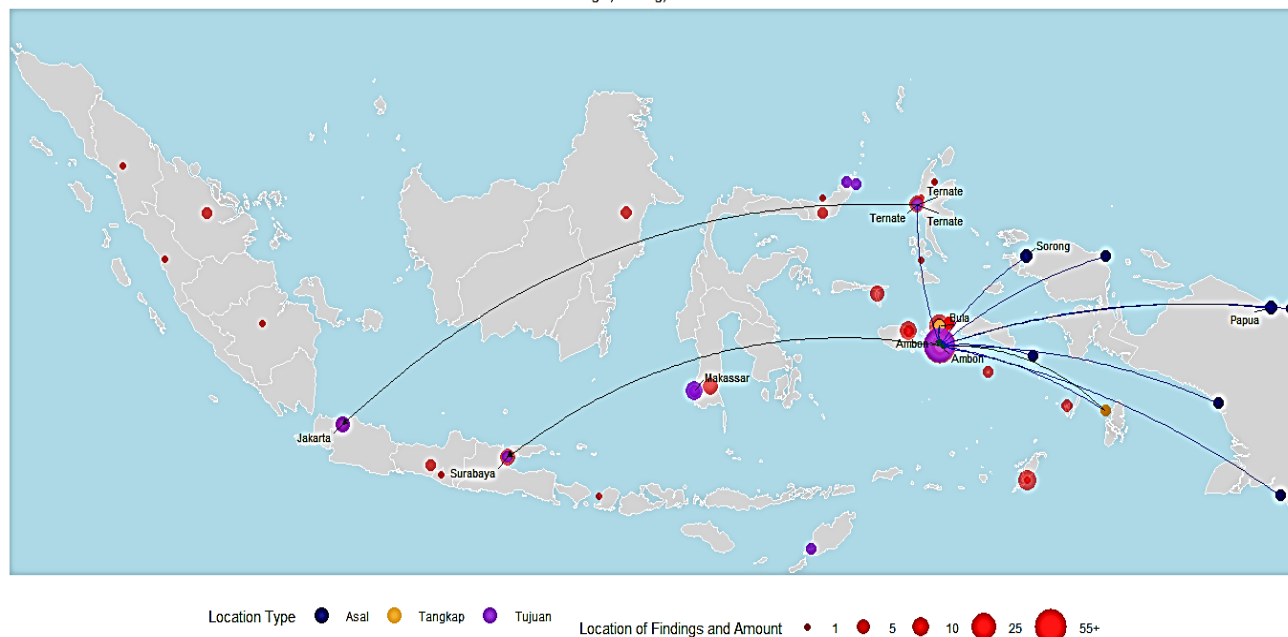
Illegal plant trafficking cases were significantly lower than wildlife trafficking cases, with only three cases identified during the study period. This finding aligns with previous research showing that 95% of illegal natural resource trafficking cases in Indonesia involve wildlife, while plants account for only 5%(Rizka Sahila et al., 2023). The first case involved the transportation of 100 kilograms of agarwood (*Aquilaria sp.*) in 2020. As a species with a conservation status of Vulnerable, the agarwood trade is strictly regulated under CITES Appendix II. However, illegal logging and illicit trade persist, as reported in a study by Septiningrum et al. (2015), which revealed high exploitation pressure on wild agarwood populations.

In May 2023, two cases were identified simultaneously. The first involved the unauthorized distribution of 18 santigi (*Phemphis acidula*) plants. Although not a protected species, the lack of legal documentation makes this case an illegal trade. This phenomenon aligns with findings (Margono, 2022)regarding the rampant illegal trade in endemic ornamental plants, particularly from eastern Indonesia. A second case in the same month involved 180 kilograms of kemedangan agarwood from Papua. This high volume confirms a previous finding by (Semiadi et al., 2010) that Papua remains a hotspot for the illegal trade in high-value timber, with evolving modus operandi.



## Illegal Distribution Routes of Wild Plants and Animals in Maluku

Visualization of Origin, Finding, and Destination Locations



**Figure 1.** Illegal distribution routes for plants and wildlife in Maluku

The data reveals a concentrated pattern of illegal wildlife and plant trafficking in eastern Indonesia, particularly in Maluku and Papua. Yos Sudarso Port in Ambon emerged as the primary hotspot with 55 cases, followed by Dobo (10 cases) and Pattimura Airport in Ambon (9 cases), indicating these transport hubs serve as critical nodes in trafficking networks. Other Maluku regions like Saumlaki (11 cases), Bula (15), and Ternate (7) further confirm this pattern. While smaller numbers were recorded in western Indonesia - including East Kalimantan (3), Sumatra (1 each in West, North, South), East Java (7), and Jakarta (5) - even remote areas reported cases, demonstrating the trade's extensive reach.

Analysis of trafficking origins shows eastern Indonesia remains the dominant source, with Sorong and Bula (2 cases each) as key transit points, leveraging their strategic maritime access. Inland areas like Agats and Merauke suggest direct harvesting from natural habitats. Meanwhile, destination data highlights Ambon (25 cases) as the main distribution hub, with Makassar (5 cases) serving as a bridge to western Indonesia. Major cities like Jakarta (3) and Surabaya (1) appear as end markets, reflecting persistent demand. These findings underscore how trafficking networks exploit eastern Indonesia's rich biodiversity and transport infrastructure while adapting to enforcement efforts through decentralized routes. The patterns emphasize the need for enhanced surveillance at critical ports and airports, stronger inter-regional coordination, and targeted demand reduction in urban markets to effectively combat this illegal trade. The persistence of cases across both major hubs and remote locations suggests a complex, adaptable network requiring equally sophisticated countermeasures. Factors refer to conditions or events that influence the occurrence of something. In the case of illegal wildlife and plant trafficking in Maluku, these factors stem from both internal (individual motives) and external (demographic conditions and market demand) aspects. Based on interviews and community questionnaires, the factors driving illegal wildlife trade are diverse, as highlighted by key informants from the Maluku Natural Resources Conservation Agency (BKSDA):

### 1. Limited Enforcement Personnel

The shortage of forest police (Polhut) is a major challenge in surveillance and patrol efforts. According to Polhut (June 2025), the current number of officers is insufficient to effectively monitor vast areas, including ports and docks. Additionally, the experience gap between senior and junior officers affects enforcement efficiency (Polhut, 2025). This aligns with (Madani et al., 2022), who found that limited human resources weaken forest law enforcement.

### 2. Evolving Smuggling Tactics

Illegal traders employ various methods, such as hiding wildlife in luggage, speakers, or passenger vehicles (Senior Polhut, Yos Sudarso Port, 2025). The Head of Passo Resort Polhut (2025) noted that smugglers often exploit early or late ferry schedules to evade detection. These sophisticated tactics necessitate smarter, technology-based surveillance approaches (TRAFFIC, 2020).

### 3. Low Public Awareness

Many locals still view protected wildlife as acceptable souvenirs, unaware of conservation laws (Senior Polhut, 2025). A forestry extension officer (Budi, 2025) added that communities lack knowledge of alternative livelihoods beyond wildlife hunting, corroborating Dwiastuti et al. (2019) on how poor conservation awareness fuels illegal trade.

### 4. Inadequate Detection Technology

The absence of X-ray scanners at ports hampers inspections (Senior Polhut, 2025). Modern tools like scanners and wildlife databases could enhance enforcement (Santoso et al., 2023).

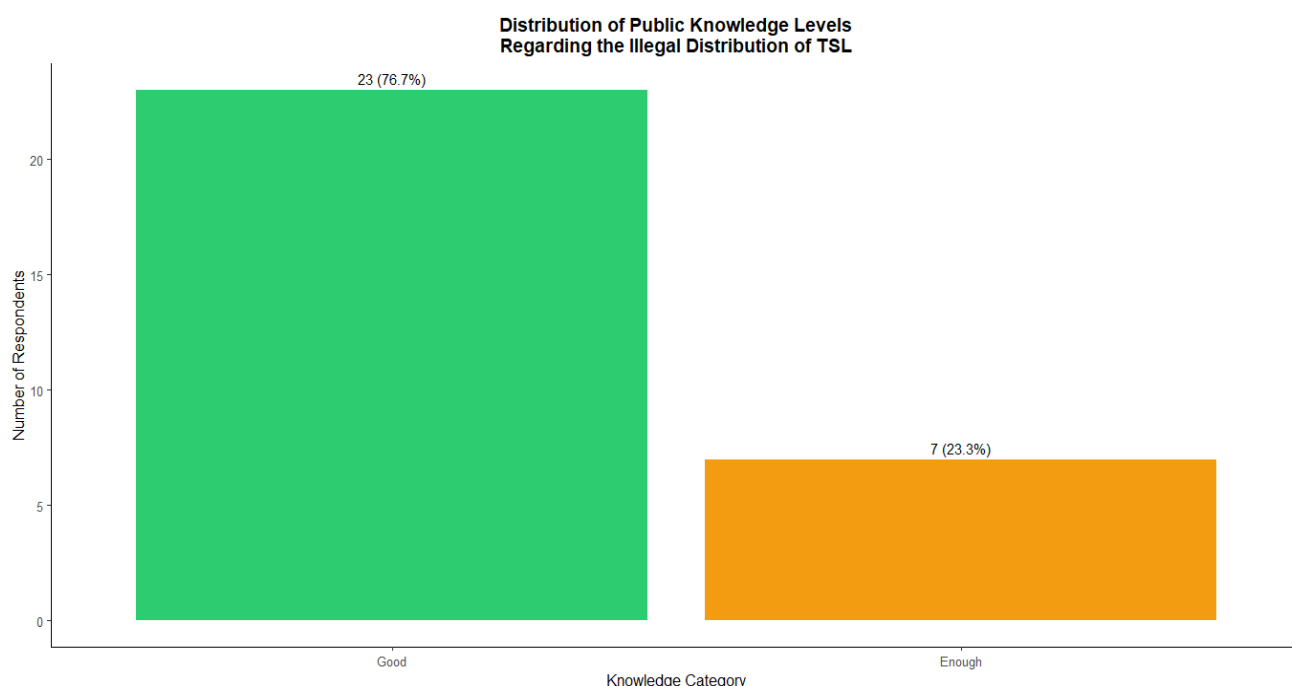
### 5. Bureaucratic Delays

Field officers must await leadership approval before legal action, slowing responses (PEH Gries, 2025). Bongso & Ibrahim (2023) found that complex procedures are often exploited by offenders.

### 6. Community Engagement and Education

Outreach programs and economic alternatives (e.g., sustainable forest products) have positively impacted local perceptions (Budi, 2025). Direct law enforcement and awareness campaigns have reduced trafficking volumes, as seen in declining seizure rates (PEH

Gries; Patrol Officer Lulu, 2025). Collaborative efforts, such as involving port workers as informants, have also proven effective (John, 2025).



**Chart 8.** *Distribution of Community Knowledge*

The majority of Maluku residents have a high level of knowledge regarding the illegal trade in plants and wildlife, which has been going on for more than five years, and are able to identify endemic species such as cockatoos, parrots, and lorikeets. The main factors driving this illegal activity are economic motivation, market demand, and weak oversight, as found by Indrawan (2022). However, public understanding of conservation policies remains limited, indicating suboptimal outreach by relevant authorities. Although legal action is considered to have a deterrent effect, the community suggests additional security personnel and intensive outreach to improve oversight and understanding of conservation. It was concluded that countermeasures need to be enhanced through law enforcement, ongoing education, and increased oversight capacity, with the implementation of recommendations such as routine patrols and massive campaigns to break the chain of illegal trade and protect Maluku's biodiversity.

## Conclusion

Based on data analysis, this study revealed that the illegal trade in wild plants and animals (FSW) in Maluku experienced a significant increase from 2020 to 2024, with the highest number of cases reaching 61 in 2024. The dominant modus operandi was cross-regional transportation, indicating the existence of an organized network exploiting transportation routes such as ports and airports. Bird species, particularly those from the Psittacidae family (such as the Moluccan Cockatoo and the Moluccan Lory), dominated the illegal trade (74.65%), followed by reptiles such as the critically endangered Hawksbill Turtle. Despite the increase in cases, individual animal sightings decreased, indicating a potential population decline due to overexploitation or ineffective law enforcement.

The main factors driving the illegal trade include economic motivation, market demand, weak oversight, and low public

awareness. Yos Sudarso Port in Ambon is a major location for illegal activity, with distribution networks reaching major cities like Jakarta and Surabaya. Mitigation efforts by the Maluku Natural Resources Conservation Agency (BKSDA), such as patrols and outreach, have had a positive impact but remain hampered by limited personnel, technology, and bureaucracy.

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