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INTERCEPTED

Using Seizure Data to
Evaluate Trends in
Elephant Ivory and
Rhino Horn Trafficking

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C4ADS (www.c4ads.org) is a 501(c)(3) nonprofit organization dedicated to data-driven analysis and evidence-based reporting of conflict and security issues worldwide. Our approach leverages nontraditional investigative techniques and emerging analytical technologies. We recognize the value of working on the ground in the field, capturing local knowledge, and collecting original data to inform our analysis. At the same time, we employ cutting edge technology to manage and analyze that data. The result is an innovative analytical approach to conflict prevention and mitigation.

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Table of Contents

Executive Summary	4
Introduction	5
Methodology.....	6
The Rates of Elephant Ivory and Rhino Horn Trafficking Over Time	8
Case Study: Exploring the Divergence between Global Seizure Data and National-Level Reporting in Namibia	10
Seizure Weight as a Reflection of Trafficker Confidence	12
Elephant Ivory and Rhino Horn Trafficking Routes and Methods.....	14
Shared Routes: Transcontinental Trafficking.....	14
From Here to There: The Role of the Transportation Industry.....	18
Case Study: Improved Elephant Ivory Enforcement in Angola	20
Mixed Elephant Ivory and Rhino Product Shipments	22
Mixed Shipments – Bulk Movement	22
Mixed Shipments – Trends Over Time.....	22
Mixed Shipments – Trafficking Routes	24
Mixed Shipments – Convergence With Other Wildlife Products.....	24
Conclusion	25
Recommendations	26
Endnotes	28

Executive Summary

As of early 2023, global elephant ivory and rhino horn seizure rates had not yet fully returned to pre-pandemic levels.^{1,2} Nevertheless, illicit elephant ivory and rhino horn trafficking endures as a threat to these iconic species. The illicit wildlife trade is not a static enterprise; it is constantly evolving in response to the barriers and opportunities that arise. Counter-trafficking stakeholders require a nuanced and updated understanding of elephant ivory and rhino horn trafficking operations to effectively confront the criminal networks sustaining them.

This report analyzes trends in publicly reported wildlife seizure data collected in the C4ADS Wildlife Seizure Database and is augmented with data from national-level reporting and representative case studies. In doing so, it identifies key areas for intervention and offers insights that can inform the development of targeted counter-trafficking strategies.

Specifically, this report finds that:³

- ➔ Geographic patterns of elephant ivory and rhino horn seizures continue to adhere to transcontinental Africa-to-Asia trafficking routes, confirming this trend persists after the onset of the COVID-19 pandemic.⁴
- ➔ Southern African states play a key role as hubs for elephant ivory and rhino horn trafficking network operations.
- ➔ Vietnam continues to grow as a continental entry point and consumer location for both elephant ivory and rhino horn.
- ➔ Outside of land-based seizures, seized shipments of rhino horn are typically transported via the air sector, and elephant ivory through the maritime sector, although less frequently than before the COVID-19 pandemic.
- ➔ Global elephant ivory seizures have increased since 2020, as indicated by two key measures: total weight seized and average seizure weight. By contrast, rhino horn seizure statistics have fluctuated in recent years.

Data-driven decision-making can help counter-wildlife trafficking stakeholders influence the economic and social factors that drive individuals to participate in the illegal wildlife trade, ultimately disrupting the illicit economy and ensuring the future of iconic species. With this impact framework in mind, this report outlines recommendations for law enforcement officials, prosecutors, and other counter-wildlife trafficking stakeholders on how to leverage a data-centric approach to combating illicit elephant ivory and rhino horn trafficking networks.

Introduction

Elephant and rhino populations are at risk worldwide. All elephant and rhino species, except for the white rhino,⁵ are endangered or at critical risk for extinction.⁶ While some of these species' populations are slowly rebounding,⁷ wildlife seizures are a stark reminder of the threat wildlife trafficking poses to their survival.

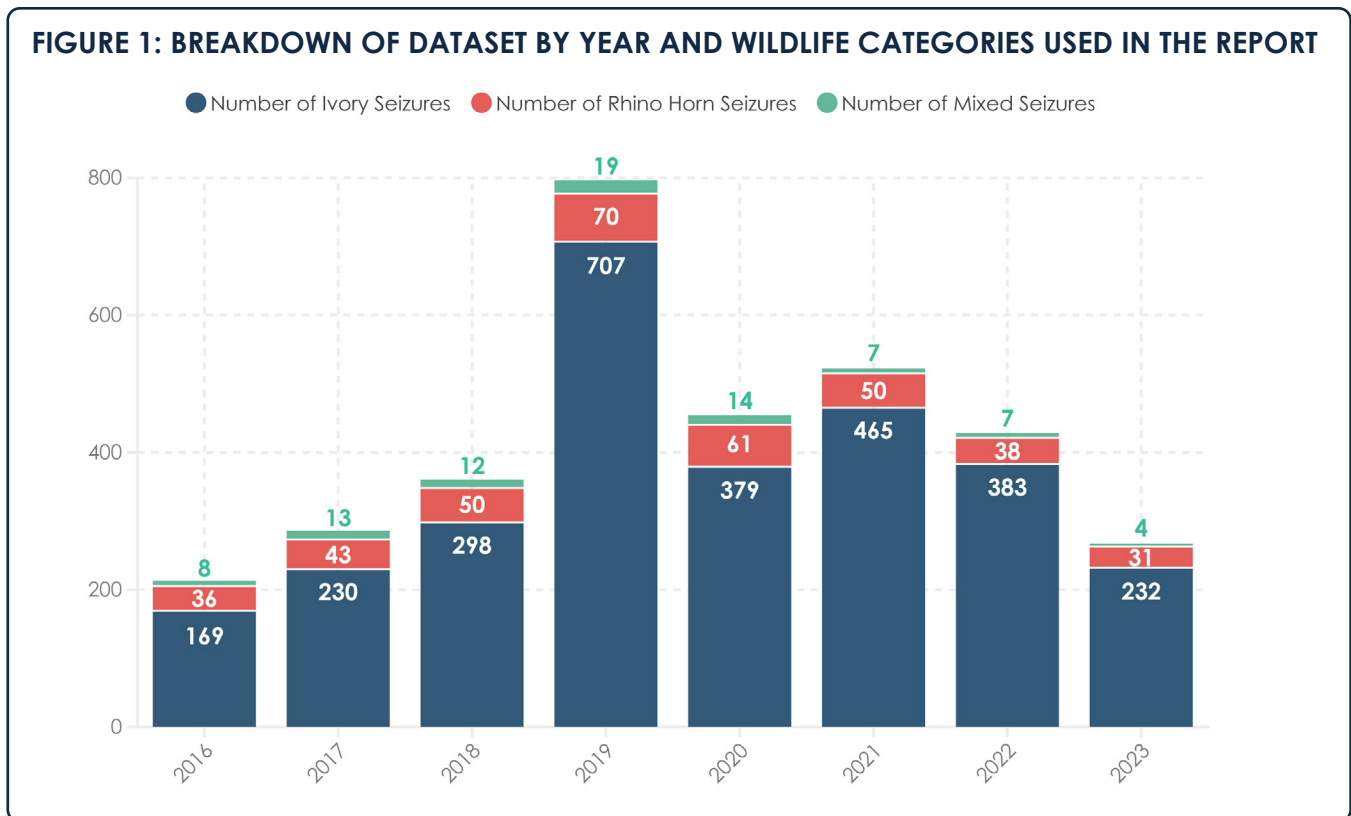
In 2023, publicly reported wildlife seizure data indicated that seizures of transcontinentally trafficked elephant ivory and rhino horn had not yet returned to 2019 levels.⁸ While this lull may have provided a reprieve for wild animal populations and law enforcement stakeholders, illicit wildlife trafficking networks appear to increasingly find their footing in this distinct operating environment.⁹

The volume of one shipment of elephant ivory and rhino horn seized in July 2022 in Malaysia exceeded the equivalent of the entire wild elephant population of Vietnam plus seven poached rhinos.¹⁰ This was one of at least 428 shipments containing elephant ivory, rhino horn, or both seized around the world in that same year.¹¹

As this seizure exemplifies, elephant ivory and rhino horn trafficking networks are not as mutually exclusive as is often implied. This report concurrently analyzes elephant ivory and rhino horn seizure data to identify key trafficking typologies and jurisdictions. In doing so, it provides recommendations that can enable efficient and effective interventions against ivory and rhino horn trafficking networks.

Methodology

The C4ADS Wildlife Seizure Database is the primary source of quantitative data analyzed for this report.¹² Specifically, the report analyzes 3,326 instances of publicly reported elephant ivory (referred to as “ivory”)¹³ and rhino horn seizures that occurred between January 1, 2016, and December 31, 2023. Additionally, the report’s case studies focus on seizures linked to Angola and Namibia (266 total seizures) due to these jurisdictions’ relevance to the elephant ivory and rhino horn trades.¹⁴



Publicly available information (PAI), including news media, customs press releases, newsletters, and other digital media—published in over 15 languages—forms the foundation of the C4ADS Wildlife Seizure Database. C4ADS’ seizure database is augmented through data exchange with other PAI seizure databases, including with data from the Environmental Investigation Agency’s Global Environmental Crime Tracker.

More than 90 fields of data can be collected for each seizure in the C4ADS Wildlife Seizure Database, including:

- ➔ Type and quantity of wildlife product seized;
- ➔ Reported shipment origin, transit, and destination locations;
- ➔ Obfuscation methods employed; and
- ➔ Individuals and networks implicated in the seizure event.

Wildlife seizure data provides a consistent collection standard across multiple jurisdictions. Unlike poaching data, which can include subsistence hunting, or animal mortality data, which includes natural deaths, seizure data is the closest quantitative proxy to measure wildlife trafficking activity. However, there are limitations to wildlife seizure data collection and analysis.¹⁵

Considerations for interpretation include:

1. Seizure data only represents failed trafficking attempts. Therefore, successful trafficking routes, methods, or other tactics may not be represented in the database.
2. Details on publicly reported seizures can be published inaccurately and change over time.
3. An increase or decrease in seizure instances may not necessarily indicate an increase or decrease in wildlife trafficking. Fluctuations in law enforcement capacity, changes in media interest in seizures, any combination thereof, or other factors could also influence these figures.

To mitigate some limitations of seizure data analysis, C4ADS supplemented its findings with national-level reporting and its investigative portfolio on ivory and rhino horn trafficking networks. Together, these resources provide more nuanced insights into factors that contribute to the trends and typologies identified in this report.

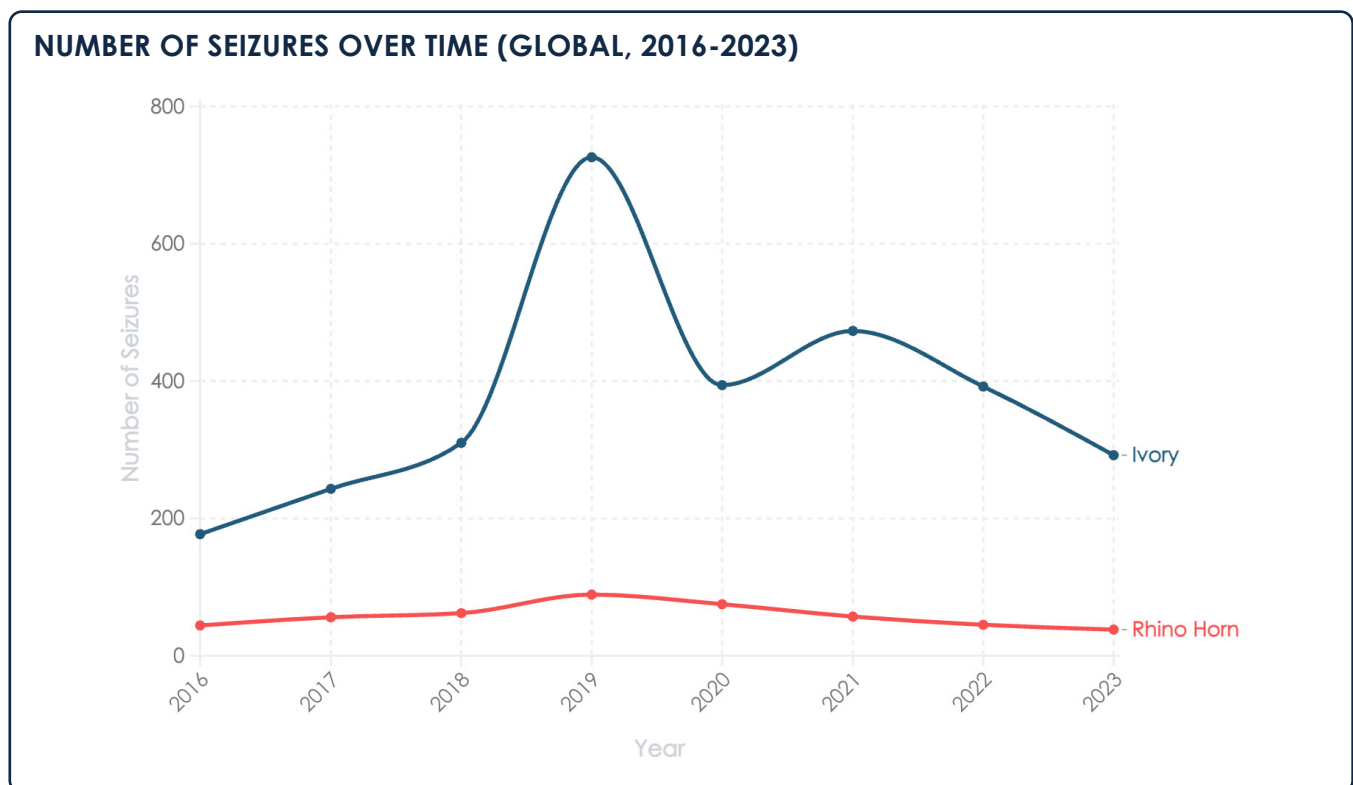
Defining Timeframes for Analysis

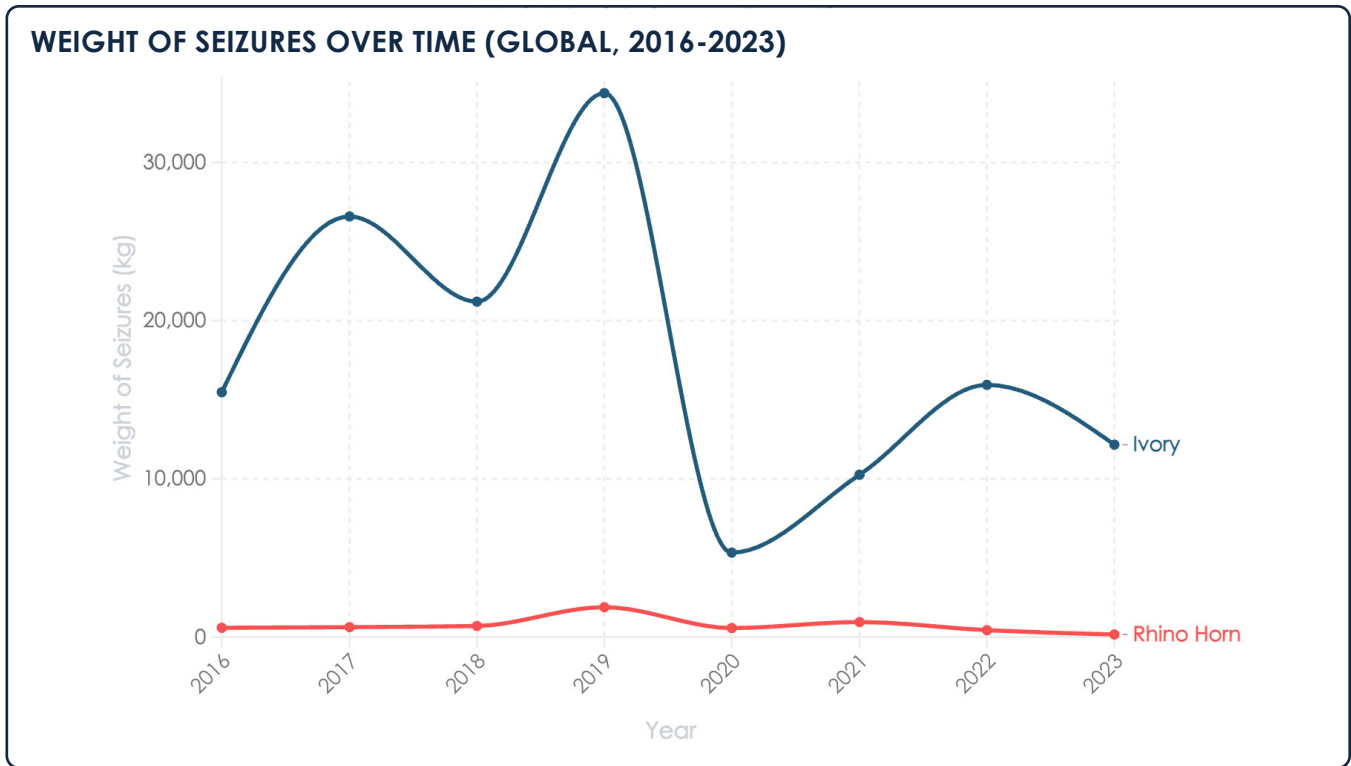
The COVID-19 pandemic serves as a non-arbitrary demarcation, separating two periods of equal length that are examined in this report: the years 2016 to 2019 and 2020 to 2023. Although the COVID-19 pandemic officially began on March 11, 2020,¹ and the World Health Organization declared the end of the public health emergency on May 5, 2023,¹ this report designates the years 2020 to 2023 as “pandemic years,” given that the virus affected millions of people throughout this period. This is in contrast to the report’s “pre-pandemic” years of 2016 to 2019.

The Rates of Elephant Ivory and Rhino Horn Trafficking Over Time

Between 2016 and 2023, nearly 3,000 ivory and 463 rhino horn seizures were publicly reported, containing approximately 140,439 kilograms (kg) of ivory and 5,842 kg of rhino horn.¹⁶ Conservatively, these numbers represent the deaths of nearly 14,044 elephants^{17,18} and 1,168 rhinos.^{19,20} Since seizure data only captures failed trafficking attempts, the role of wildlife trafficking in species decline is even greater than these seizure numbers indicate.

Despite a near-decade of increased global counter-wildlife trafficking efforts, particularly around iconic species,²¹ the most significant disruption to trafficking can be credited to the COVID-19 pandemic. Between 2016 and 2023, the number of global ivory and rhino horn seizures increased by 25%.²² This statistic alone does not show the full picture, as it is influenced by the impact of the COVID-19 pandemic on licit and illicit global trade. Specifically, between 2019 and 2020, there was a 46% decrease in ivory seizures and a 16% decrease in rhino horn seizures.²³ These considerable drops followed four years of near-continuous annual increases in the total number of seizure events and the weight of product seized.²⁴





While the pandemic may appear to have provided a reprieve to the targeted species, the data indicates that this has not led to sustained lower trafficking rates in the case of ivory.²⁵ In the four years since 2019, the annual amount of ivory seized by weight has increased. Yearly seizure counts have generally been higher than in pre-pandemic years (excluding 2019).²⁶ Conversely, rhino horn seizure quantities have fluctuated annually.²⁷

Case Study: Exploring the Divergence between Global Seizure Data and National-Level Reporting in Namibia

Global trends in wildlife seizure data do not always align with seizure patterns in individual jurisdictions. For example, Namibia experienced a serious rhino poaching spike in 2022²⁸ that is not reflected in publicly reported global seizure data.²⁹ At the same time, Namibia saw a decrease in elephant poaching, while the weight of global ivory seizures increased.³⁰ The case of Namibia illustrates the importance of using global trafficking data in conjunction with national-level data to understand the nuanced factors driving shifts in global seizure activity, as well as the policy and enforcement efforts underlying them.

NAMIBIAN RHINO HORN CASES



Ninety-three rhinos were poached in Namibia in 2022, a 98% increase from the previous year.³¹ Despite the poaching surge, only five rhino horns were seized,³² indicating that at least 181 rhino horns were successfully trafficked out of Namibia. Given the global decrease in rhino horn seizures in 2022,³³ which amounted to the horns of approximately 86 rhinos,^{34,35} many of the Namibian horns were likely trafficked successfully to consumers without interdiction.

Traffickers exploit the expansive and remote border between Namibia and Angola, among other routes, to move rhino horn out of Namibia on its way to Asia.³⁶ Consequently, as rhino horn trafficking increases in Namibia, an increase in rhino horn trafficking and potential rhino horn seizures, would be expected in Angola.³⁷ Angola did experience a slight increase in rhino horn seizures in 2022, intercepting two shipments, compared to zero in 2021.³⁸ In fact, in February 2022, Angolan authorities at Quatro De Fevereiro International Airport in Luanda seized 13 rhino horns from a passenger's luggage,³⁹ the third-largest rhino horn seizure globally that year and the largest rhino horn seizure for Angola recorded in the C4ADS Wildlife Seizure Database.⁴⁰

In response to the increased threat to Namibian rhinos, Namibian authorities undertook multiple interventions. These included decreasing the time between arrest and sentencing of poachers and improving detection capabilities to arrest criminals en route to poaching activity (i.e., "preemptive arrests").⁴¹ The following year, there were 48% fewer rhino poaching cases in Namibia,^{42,43} likely a reflection of these and other efforts.



NAMIBIAN ELEPHANT IVORY CASES

Instances of elephant poaching in Namibia consistently declined between 2016 and 2021, despite an increased elephant population.⁴⁴ The decline in poaching continued in 2022, in correlation with an above-average number of elephant crime-related arrests and convictions in 2021 and long prison sentences issued early in 2022.⁴⁵

Between 2016 and 2020, Namibian authorities arrested an average of 73 individuals per year on charges relating to elephant crime.⁴⁶ This average was exceeded in 2021 when officers arrested 98 individuals.⁴⁷ Additionally, 2021 marked the highest number of elephant crime convictions (36) in six years.⁴⁸ These efforts not only removed criminal actors from the trafficking ecosystem but may also have increased the perceived risk of participating in the crime. The change in criminal behavior was reflected in 2022 when elephant poaching incidents decreased by 50%, and elephant crime-related arrests and seizures also diminished.⁴⁹

Further, in early 2022, the Office of the Prosecutor General in Namibia introduced temporary Special Courts to deal with wildlife cases.⁵⁰ These dedicated courts meant that cases could be closed more quickly, an important crime deterrence factor.⁵¹ In the first Special Court sessions in April 2022, multiple ivory trafficking perpetrators were sentenced to six or more years of imprisonment.⁵² These high sentences may have contributed to the low elephant poaching seen that year when only four elephants were killed.⁵³ The 2022 data reflected a five-year low in seizures of elephant tusks in the country.⁵⁴ This apparent decrease in ivory trafficking was not paralleled worldwide.⁵⁵ Rather, the number of publicly reported global ivory seizures remained higher than pre-2019 years, and the total weight of ivory seized increased by 55% compared to 2021.⁵⁶

The creation of the Namibian Special Courts and the high sentencing issued, combined with greater arrests and convictions in 2021, may have influenced ivory traffickers and poachers to see Namibia as a high-risk jurisdiction and resulted in them shifting their operations elsewhere. Supply chain adaptation is less feasible for rhino horn trafficking networks due to the high concentration of rhino populations in Namibia.

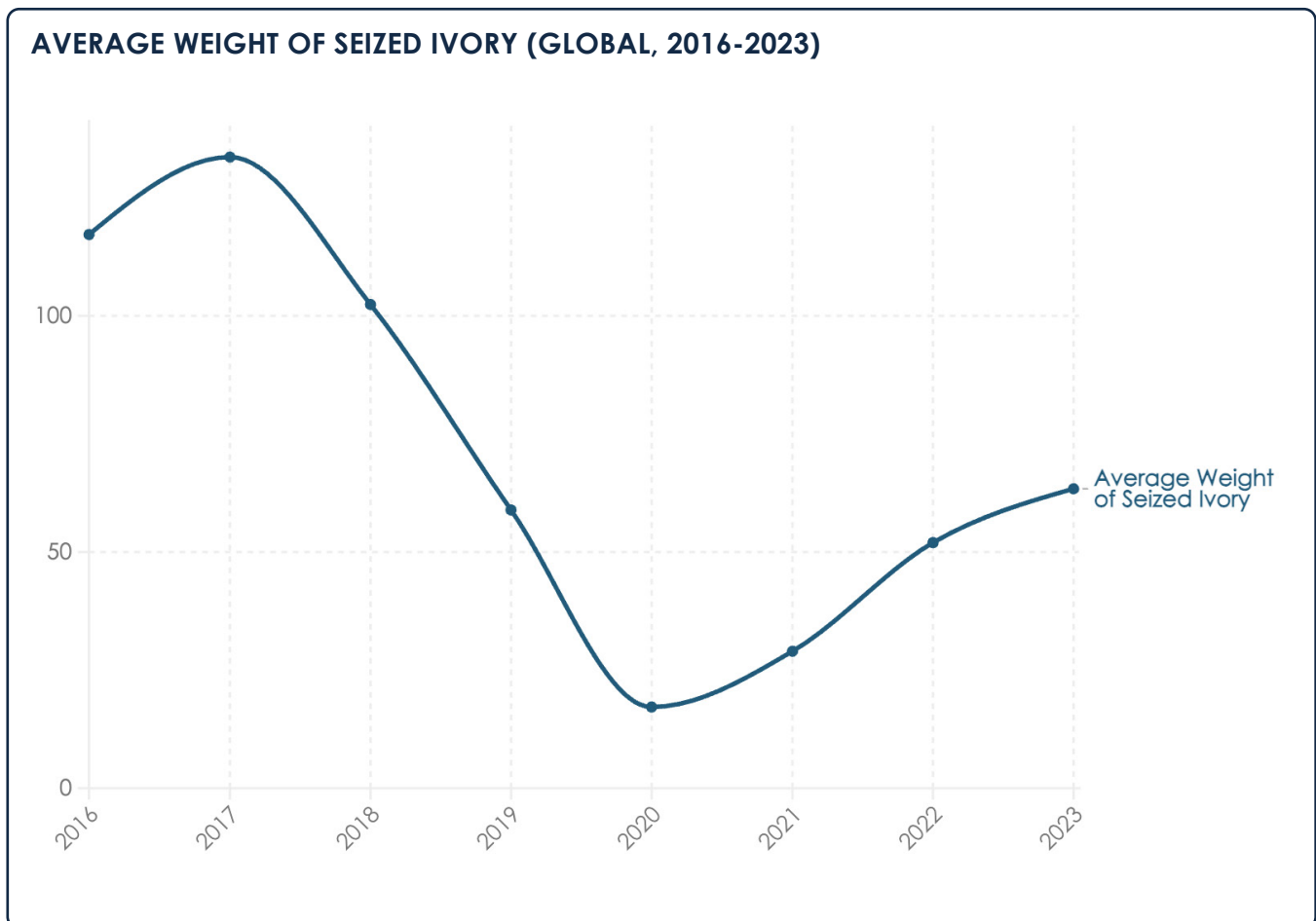
Given Namibia's wildlife case backlog,⁵⁷ and the importance of successful prosecution in counter-trafficking efforts, continuing the frequency of Special Court sessions—or making them permanent—would provide more consistent deterrent sentencing and impact the risk calculus of poachers and traffickers.

While these changing dynamics of poaching, seizures, and policy in Namibia are not evident in global rhino horn seizure data, they are a critical part of the story that could help inform counter-trafficking efforts worldwide.

Seizure Weight as a Reflection of Trafficker Confidence

After reaching a five-year low, the average weight of global ivory seizures has been increasing since 2020.⁵⁸ Average rhino horn seizure weights, by contrast, have fluctuated—spiking to 21.5 kg per seizure in 2021, then sinking to a record low of 4.6 kg in 2023.⁵⁹ The weight of seized wildlife, especially the average weight, is a strong indicator of the severity of the illicit trade in a given product, as it represents the minimum quantity of product available in the illicit market. Seizure weight is also strongly tied to the levels of confidence and complexity of trafficking networks.^{60,61}

As a rule, the larger the wildlife shipment, the more complex the network behind it.^{62,63} Extensive logistical expertise is required to covertly source, store, and transport a large quantity of illicit wildlife products through global supply chains.^{64,65} Furthermore, dispatching a bulk wildlife shipment is risky. Losing such a shipment to interdiction is financially costly for traffickers. Therefore, a rising average weight of seized shipments suggests that traffickers feel sufficiently confident that the larger shipments will not be intercepted, or that their operations could withstand any losses incurred by a seizure.



Except for a brief increase in 2017, the average weight of seized ivory shipments declined between 2016 and 2020.⁶⁶ By contrast, from 2020 to 2023, the global average weight of seized ivory increased each year.⁶⁷ This year-to-year increase is an alarming trend that counter-trafficking stakeholders should continue to monitor, as it indicates that trafficking networks are increasingly sophisticated, well-resourced, and confident in their movements.

On the other hand, fluctuations in the total weight of seized rhino horn in recent years have made it more challenging to pinpoint a consistent trend.⁶⁸ Over the eight years, the average weight of a seized rhino horn seizure was 14.9 kg, but the average weight of seized rhino horn shipments oscillated during the pandemic years, ranging from 9.3 kg in 2020 to 21.5 kg in 2021 to 4.6 kg in 2023.⁶⁹ This fluctuation is potentially representative of the disruption caused by the COVID-19 pandemic's onset. It may also indicate that rhino horn trafficking patterns are more sensitive to product accessibility and demand compared to ivory.



In the early years of the pandemic, traffickers had to adapt their operations in response to rapidly changing travel restrictions, reportedly stockpiling wildlife products until conditions for transnational trade became more amenable.⁷⁰ The considerable drop in average seizure size for ivory and rhino horn shipments in 2020⁷¹ reflects the pandemic's impact on traffickers' ability to not only source and accumulate but also to transport product.

Elephant Ivory and Rhino Horn Trafficking Routes and Methods

Understanding the common trends in ivory and rhino horn seizure data can help law enforcement, prosecutorial, and policy stakeholders assess where their efforts could target both trafficked products simultaneously and where their interventions could better address one of these types of trafficking. Distinguishing these areas of joint and individual effort can make counter-trafficking endeavors more precise and efficient.

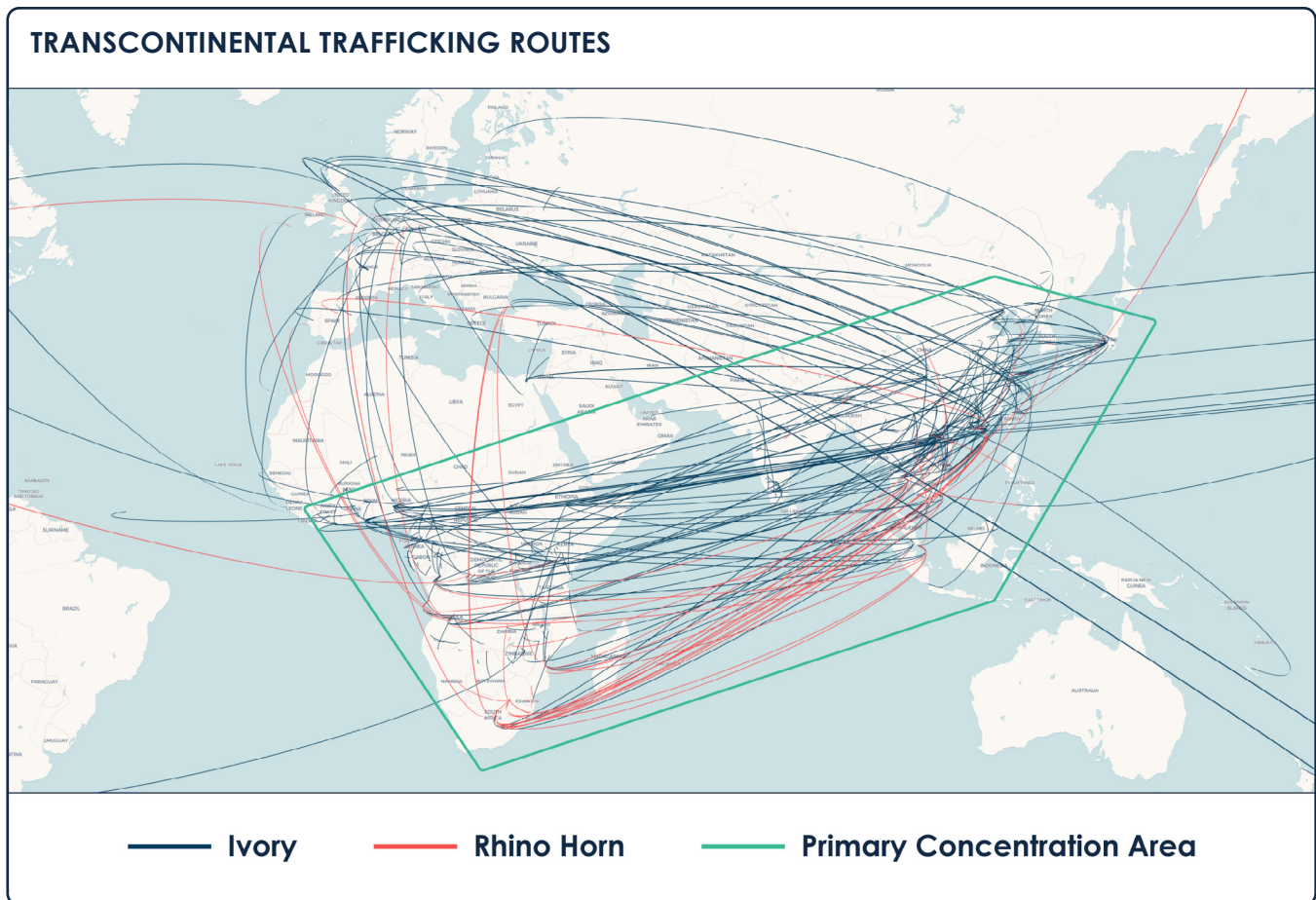
This section identifies five key shipment channels used by ivory and rhino horn trafficking networks:⁷²

- ➔ Ivory and rhino horn are both trafficked transcontinentally from Sub-Saharan Africa to East and Southeast Asia.
- ➔ China, Hong Kong, and Vietnam are common destination jurisdictions for the two wildlife products, with Vietnam's significance increasingly manifest.
- ➔ Common origin locations of seized shipments, such as Angola and Mozambique, are not necessarily indicative of poaching locations.
- ➔ Origin countries' low interdiction success rates make them priority locations for intervention.
- ➔ While ivory and rhino horn are trafficked across all transportation sectors and are most often seized during land transit, ivory is otherwise predominately moved through the maritime industry, while rhino horn is transported through the air transit sector.

Shared Routes: Transcontinental Trafficking

Wildlife trafficking is a transnational—or more specifically, transcontinental—crime. Predominantly sourced from Sub-Saharan Africa and destined for East and Southeast Asia, ivory and rhino horn trafficking networks move illicit product across multiple borders harnessing diverse transportation methods.⁷³

Between 2016 and 2023, ivory and rhino horn seizures implicated air, maritime, mail, and ground transportation sectors across 94 countries.⁷⁴ While poachers target both African and Asian species of elephants and rhinos, nearly 44% of ivory seizures and 59% of rhino horn seizures can be traced to Sub-Saharan Africa.⁷⁵

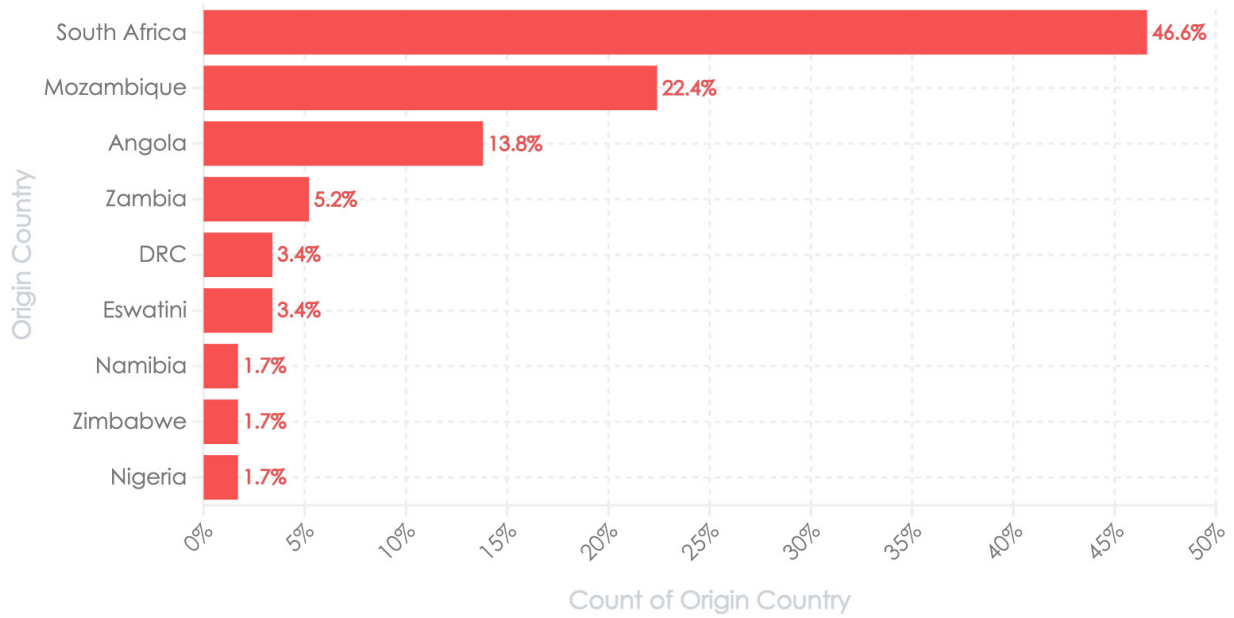


Demand for ivory and rhino horn is often rooted in a complex interface between economic prosperity and long-held cultural beliefs, such as traditional medicine practices.^{76,77} While these products are sourced from the African continent, Asia is the most common destination for both.⁷⁸ Of the ivory and rhino horn seizures with reported destinations, more than half were destined for three jurisdictions: China, Hong Kong, and Vietnam.⁷⁹

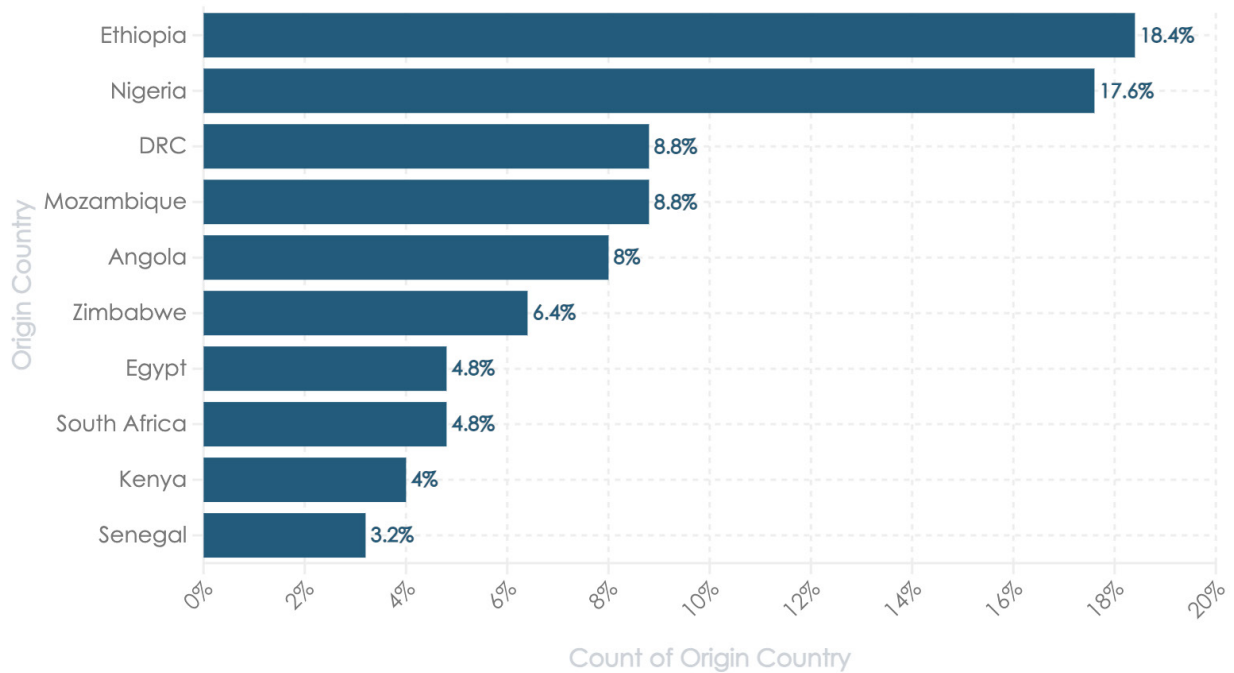
Transportation restrictions and country-wide lockdowns during the pandemic made transnational movement, legal and illegal, more difficult and costlier.^{80,81} Data on traffickers' operations at that time reveals a shift in preferences for transportation corridors. China and Hong Kong, which had some of the most restrictive pandemic transportation regulations,^{82,83} saw a 99% decrease in the quantity of ivory seized between 2019 and 2023, with every year between seeing a consistent decline. Vietnam only saw a 43% decrease in the amount of ivory seized, with an all-time low in 2021, followed by an increase every year since.⁸⁴

This trend indicates that the Sub-Saharan Africa to Vietnam trafficking route may have been used to offset the disruptions of China's pandemic lockdown. Given Vietnam's increased significance in ivory and rhino horn trafficking routes since 2013,⁸⁵ the pandemic seems to have exacerbated this overall trend, suggesting that this shift is likely to persist in the absence of intervention efforts. Trends in rhino horn and ivory trafficking origin jurisdictions are less variable, as they rely on proximity to wild populations of elephants and rhinos. For shipments with a reported Africa to Asia route, Angola and Mozambique are among the top five origin locations for ivory and rhino horn seizures.⁸⁶

AFRICA TO ASIA RHINO HORN SEIZURE ORIGIN COUNTRIES



AFRICA TO ASIA IVORY SEIZURE ORIGIN COUNTRIES



In the C4ADS Wildlife Seizure Database, a seizure’s origin location is not necessarily indicative of where the animals were poached but rather where the shipment originated. Angola and Mozambique are notably linked to many rhino horn seizures⁸⁷ but possess very small or nonexistent rhino populations. Angola has no rhinos at all,⁸⁸ and Mozambique reported just 14 white rhinos and two black rhinos in 2023.⁸⁹ However, between 2016 and 2023, 15 seizures involving the horns of approximately 28 rhinos were linked to Angola, and 29 seizures involving the horns of at least 120 rhinos were linked to Mozambique.^{90,91}

The Role of Population Proximity in Shipment Origins in Southern Africa

The prevalence of Angola and Mozambique as seized rhino horn shipment origins, despite their small or nonexistent rhino populations, is driven by poaching in neighboring countries, namely Namibia and South Africa. Kruger National Park in South Africa borders Mozambique and has the largest rhino population in the world⁹²—and a proportionally large poaching problem.⁹³ Despite a nearly 50% decrease in rhino poaching in the park between April 2022 and 2023 compared to the prior 12 months, 98 rhinos were killed,⁹⁴ yielding approximately 490 kg of rhino horn.^{95,96} During the same period, only 370 kg of rhino horn were seized globally, underscoring Kruger’s role as a source location, with its unofficial border crossings into Mozambique providing an avenue for poachers to transport product undetected.

The disparities in species population and shipment origins illustrate an important point: jurisdictions lacking substantial populations of a particular type of wildlife, in this case, rhinos, may still be hotspots for trafficking due to their geographical location, logistical infrastructure, or comparatively lenient legal consequences for intercepted trafficking attempts.

Processed Elephant Ivory as an Indicator of Key Operation Locations in Africa



Seizures of processed—as opposed to raw—wildlife products can provide critical insight into key trafficking hubs in Sub-Saharan Africa. This is particularly true of ivory. Processed ivory, in the form of jewelry, statues, or other items, drives consumer demand and requires specialized skills and tools to produce. Rhino horn, on the other hand, is primarily used as a raw consumable, so it is rarely processed.⁹⁷ The skill set required to process ivory has historically been centralized in Asia,⁹⁸ but seizures of minimally processed ivory products in such items as bangles, beads, and tiles in Sub-Saharan Africa point to the possibility of an emergent ivory processing industry there.^{99,100}

Of the 1,324 seized shipments of processed ivory in the C4ADS Wildlife Seizure Database, only 214 (16%) can be linked to Sub-Saharan Africa. Ethiopia and Kenya are the jurisdictions most commonly linked to processed ivory seizures, with 57 and 26 instances, respectively, followed by Angola, the Democratic Republic of the Congo, and South Africa, with 15 instances each.¹⁰¹ Ethiopia’s Bole International Airport in Addis Ababa is a major continental air transit hub,¹⁰² and all processed ivory shipments linked to Ethiopia were trafficked via this airport.¹⁰³ Thus, Ethiopia is likely not a processing location on the continent, but rather appears as a transit jurisdiction. Kenya, while also a continental exit point, has seized six shipments of processed ivory transported by land, indicating that it may have some processing capabilities, alongside the Democratic Republic of the Congo, South Africa, and Angola.¹⁰⁴

Investigative efforts in countries where processed ivory shipments originate could yield high-impact seizures and arrests that would target chokepoints of trafficking operations. In 2018, for example, a suspected ivory processing workshop was identified and raided in Angola, resulting in the arrest of several Vietnamese nationals.¹⁰⁵ Despite this successful law enforcement operation, five years later, in April 2023, there were two seized mixed shipments linked to Angola that contained processed ivory along with rhino horn.^{106,107} These seizures totaled 35 kg of ivory and 18 kg of rhino horn and were destined for Vietnam via airplane passenger luggage.¹⁰⁸ The persistence of

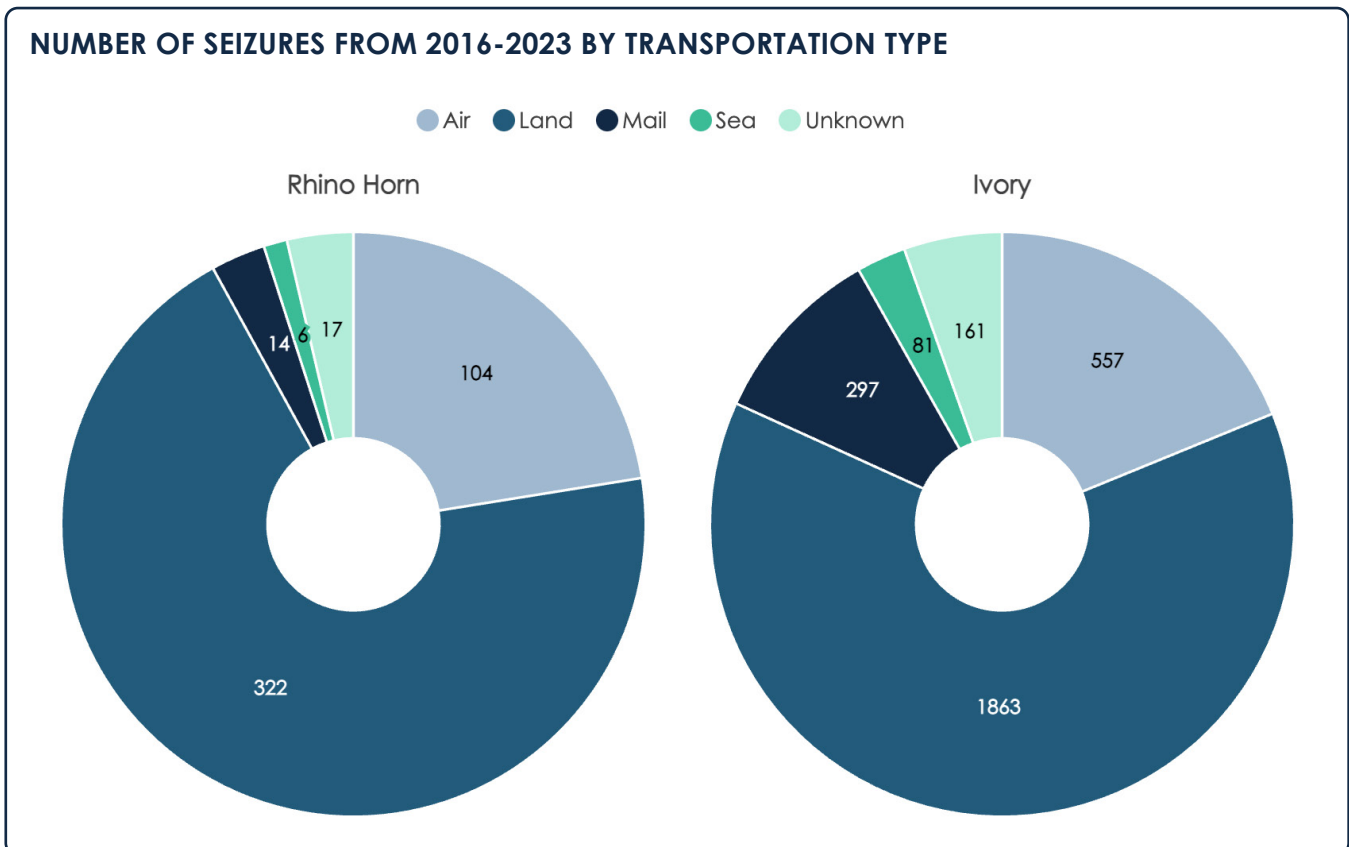
supply-side processing in Angola indicates sophisticated network activity that goes beyond the country’s role as a transit jurisdiction for trafficked ivory.

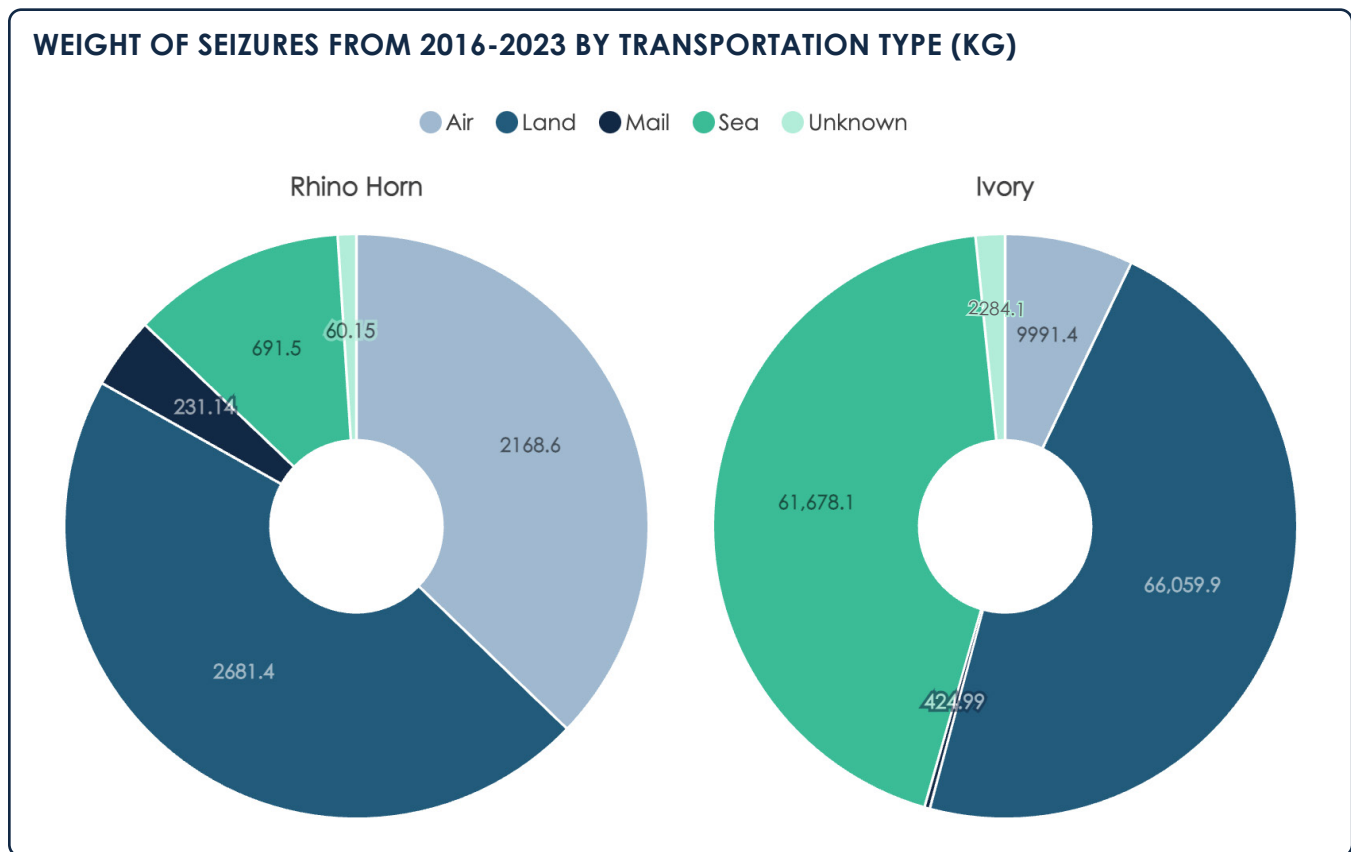
Port and airport authorities, border and customs officials, and law enforcement in shipment origin jurisdictions are the first line of defense against transnational trafficking. The further seizures occur along the supply chain, the more challenging it becomes for authorities in origin jurisdictions to identify perpetrators and successfully prosecute them. These steps are critical for the sustainable disruption of wildlife crime. As such, strengthening the capacity to identify trafficked ivory and rhino horn shipments in jurisdictions such as Angola, Namibia, and Mozambique can result in impacts that resonate across the supply chain.

From Here to There: The Role of the Transportation Industry

The transcontinental nature of ivory and rhino horn trafficking networks necessitates co-optation of licit maritime and air transportation systems to move product from source to consumer. Wildlife traffickers target air and seaports they consider low-risk for detection, either due to lax enforcement or personal networks that facilitate corruption and bypass compliance.

Ivory and rhino horn trafficking networks diverge in their most common transportation method: 37% of rhino horn seized is intercepted in the air transit sector, while this is only true for 7% of seized ivory.¹⁰⁹





Wildlife product often moves through the air transit sector in passenger luggage, as opposed to air freight.¹¹⁰ Thus, while air transit is faster than maritime container shipping, its logistical limitations can impact traffickers' economic calculus when selecting a mode of transportation. For example, rhino horn is more valuable and rarer per kilogram than ivory.¹¹¹ This distinction is reflected in shipment size, as the average rhino horn seizure weighs 15 kg¹¹² and the largest publicly-reported seizure consisted of 167 horns,¹¹³ or approximately 417 kg.¹¹⁴ By comparison, there have been 44 ivory seizures of over 500 kg each since 2016.¹¹⁵ Rhino horns constitute high-value, low-weight shipments, making the air transit sector a convenient mode of transporting them. To move ivory in bulk and evade detection, however, traffickers rely largely on the maritime container industry to move product between continents.¹¹⁶

In recent years, two airports have emerged as rhino horn trafficking hotspots:

1. O. R. Tambo International Airport (JNB)

Between January 2020 and December 2023, about one-third of rhino horn shipments trafficked via the air sector were seized at O.R. Tambo International Airport in Johannesburg, South Africa.¹¹⁷ The prevalence of this location in rhino horn supply chains may be explained by a combination of factors: the large rhino populations in South Africa,^{118,119} the capacity of officials to detect and seize trafficked shipments, and the frequency of public seizure reporting at this airport.

2. Tan Son Nhat International Airport (SGN)

Over the same four years, authorities seized 87 pieces of rhino horn passing through Tan Son Nhat International Airport in Ho Chi Minh City, Vietnam.¹²⁰ Traffickers predominantly moved the products in their luggage and were coming from Angola, Mozambique, the Philippines, South Africa, and South Korea, with two having transited Qatar or Singapore.¹²¹ In two cases, the rhino horn mules who were arrested transporting product out of Mozambique and South Africa claimed they were promised payment from Asian nationals.¹²²



Case Study: Improved Elephant Ivory Enforcement in Angola

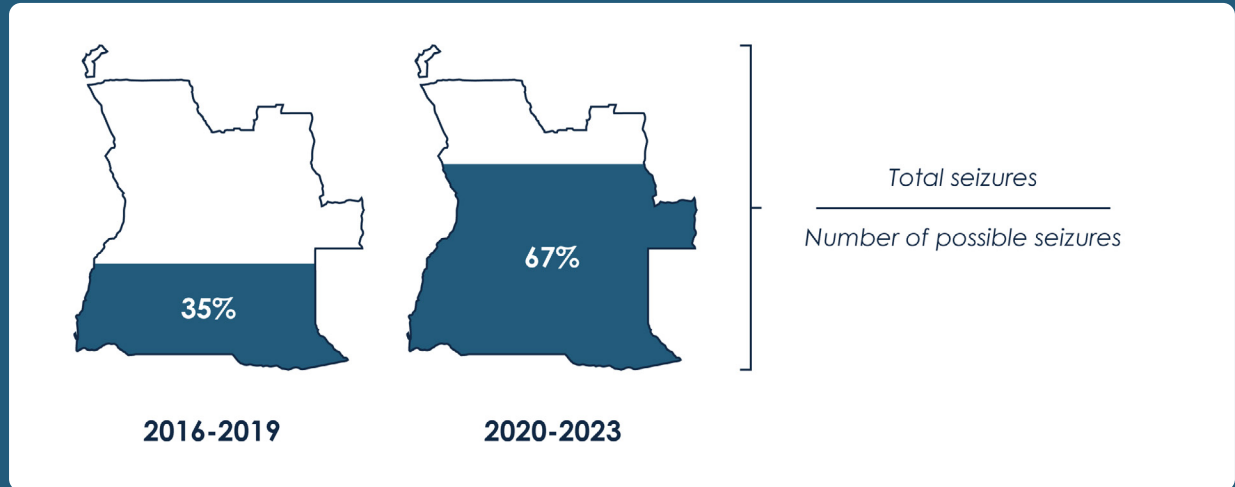
Angola's prevalence in wildlife seizure routes has doubled in recent years, and yet its domestic ability to detect and disrupt ivory shipments, particularly at its airports, has markedly improved at the same time. This capacity surge is a testament to a number of intervention efforts and a sign of hope for a critical jurisdiction in global counter-wildlife trafficking efforts.

Between 2016 and 2019, seven ivory shipments totaling nearly 1,000 kg and representing approximately 100 poached elephants,¹²³ reportedly departed Angola only for authorities in other jurisdictions to seize them.¹²⁴ Rhino horn trafficking saw a similar trend, with four shipments successfully passing through Angola's airports without detection.¹²⁵ Overall, 91% of the shipments that transited Angola only to be seized further down the supply chain exploited the country's air transit sector,¹²⁶ indicating a possible enforcement gap at Quatro de Fevereiro International Airport (LAD) in Luanda at the time.

However, Angola achieved a 67% interdiction success rate between 2020 and 2023, seizing 18 shipments before they left the country, with only nine additional shipments being seized post-departure.¹²⁷ Much of this improvement can be credited to efforts at LAD, as nearly 40% of the country's seizures were intercepted at LAD before departure.¹²⁸

This improvement may be due in part to Angola's counter-wildlife trafficking interventions in recent years.¹²⁹ In 2021, Angola joined Costa Rica and Gabon in advocating for the Global Initiative to End Wildlife Crime (EWC), which would add wildlife crime as a fourth protocol area under the UN Convention Against Transnational Organized Crime.¹³⁰ Domestically, Angola hosted its first national workshop on wildlife crime in January 2023.¹³¹ Over 30 prosecutors and police officers, as well as Angola's Environment Minister, joined experts from the Elephant Protection Initiative to hone officials' understanding of wildlife crime and define priorities for future action.¹³²

ANGOLA ENFORCEMENT INDEX



Angola's efforts toward building counter-wildlife trafficking capacity since 2019 are considerable and commendable, but enforcement stakeholders across the country still face daunting challenges. In January 2024, the Standing Committee of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) recommended that all commercial trade in CITES-listed species with Angola be suspended until further notice.¹³³ This recommendation came as a result of CITES parties' concerns that Angola had not made sufficient progress toward the goals set out in its National Ivory Action Plan (NIAP), last updated in 2018.¹³⁴ The move was intended to encourage Angolan stakeholders to prioritize implementing the NIAP, particularly its goals regarding intelligence, investigation services, and strengthening enforcement capacities.¹³⁵ Just five months later, in May 2024, CITES withdrew the trade suspension recommendation following a positive assessment of Angola's NIAP progress.^{136,137}

Through knowledge sharing, cross-border collaboration, and expanding the resources available to law enforcement and prosecutorial authorities, Angola can capitalize on its recent successes in counter-trafficking to achieve the remaining NIAP goals and strengthen its efforts beyond them.¹³⁸

Mixed Elephant Ivory and Rhino Product Shipments

While ivory trafficking networks and rhino horn trafficking networks mainly specialize in one wildlife category,¹³⁹ mixed-shipment seizures indicate product trafficking convergence. Seizures of these “mixed” shipments of ivory and rhino horn are uncommon,^{140,141} but when they occur outside of consumer locations, they indicate sophisticated network operations in which the traffickers have the resources and know-how to manage the complex supply chain of multiple wildlife products simultaneously.¹⁴² However, not all trafficking networks with the ability to source and transport multiple commodities necessarily ship them together.¹⁴³ Nor do networks necessarily ship exclusively mixed shipments or exclusively separate shipments.¹⁴⁴ Rather, traffickers may choose to vary their contents as a result of supply stock, demand, or various other factors.¹⁴⁵

Analysis of mixed-shipment seizures can give insight into complex networks and enable targeted enforcement action against the most profitable illicit operations. This section evaluates:

- ➔ Comparative product quantities in mixed shipments compared to single-product ivory or rhino horn shipments;
- ➔ Changing rates of mixed shipments over time;
- ➔ Mixed shipments’ adherence to established transcontinental trafficking routes; and
- ➔ The frequency that mixed ivory and rhino horn shipments include other wildlife products.

Mixed Shipments – Bulk Movement

Compared to seized single-product shipments of ivory or rhino horn, seized mixed shipments contain, on average, higher volumes of ivory, but similar volumes of rhino horn.¹⁴⁶

Overall, mixed-shipment seizures between 2016 and 2023 accounted for the interdiction of over 15 metric tons of ivory and 730 kg of rhino horn.¹⁴⁷ The considerable weight of mixed shipments compared to single-product seizures is broadly indicative of the relative sophistication of the networks responsible for trafficking them.^{148,149} Networks must be organized and well-resourced in terms of money, connections, and expertise to source, store, and coordinate the transportation of large quantities of ivory and rhino horn simultaneously.¹⁵⁰

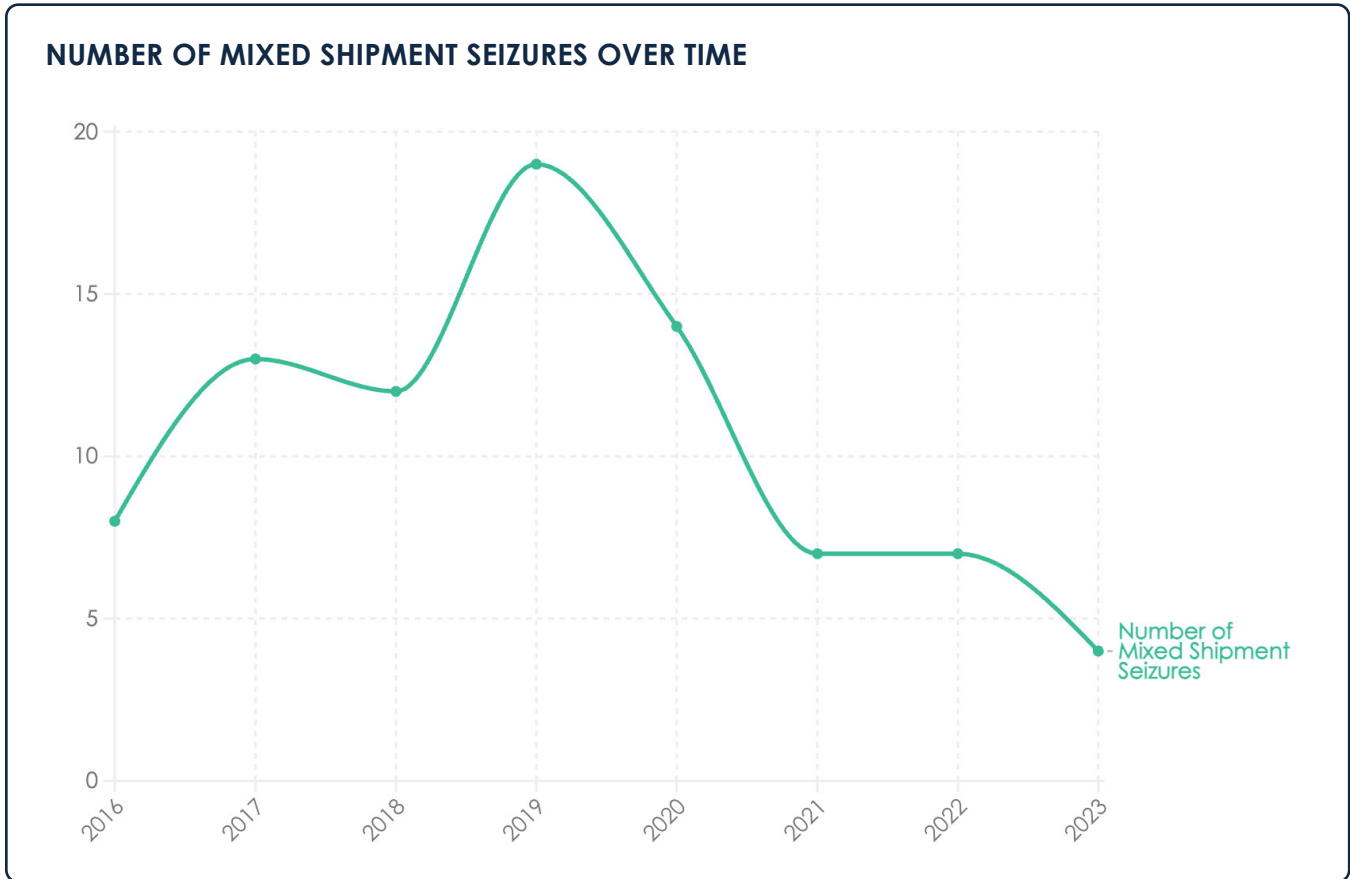
Average weight of a seizure that uniquely contains elephant ivory or rhino horn

Average weight seized in a mixed shipment that contains elephant ivory and rhino horn

<i>Elephant Ivory</i>	56 kg	320 kg
<i>Rhino Horn</i>	15 kg	12 kg

Mixed Shipments – Trends Over Time

Between 2016 and 2023, 84 publicly reported seizures contained ivory and rhino horn packaged together.¹⁵¹ Compared to pre-pandemic years, mixed-shipment seizures have decreased in quantity since the beginning of 2020.¹⁵² This parallels the global decrease in rhino horn seizures and the weight of ivory seized.¹⁵³ Thus, while it is unlikely to have been the exclusive cause of this decline, the COVID-19 pandemic’s effect on global commerce, both licit and illicit, is likely a key contributor to this particular trend.



Despite a 26% decrease in mixed-shipment seizures between 2019 and 2020, nearly half of these mixed shipments seized since the beginning of 2020 were intercepted in that year alone.¹⁵⁴ Several of these seizures appeared to have been at or beyond the point of processing, including at a rosary manufacturer in Turkey¹⁵⁵ and an ornament and jewelry sales network in Guangdong Province, China.¹⁵⁶ As wildlife products move along the supply chain, they are commonly inter-mixed as they approach their point of sale.¹⁵⁷ This is because salespeople can purchase from multiple traffickers to reach varied market demands. In the pre-pandemic years, nearly half of mixed-shipment seizures occurred in China, Vietnam, or Hong Kong, exemplifying this trend of consolidation as the products approach their end consumers.¹⁵⁸

Relatively high numbers of mixed ivory and rhino horn seizures between 2016 and 2019 indicate that networks increasingly diversified their products before the pandemic's onset.¹⁵⁹ COVID-19-related border closures and domestic transport restrictions may have limited consolidation opportunities and, thus, disrupted mixed-shipment operations, forcing reliance on single-product shipments. Since elephants and rhinos are largely poached from different jurisdictions,¹⁶⁰ the trafficking routes of mixed-shipment seizures can indicate where trafficking networks store and repackage their wares. These centralized operating locations are high-impact intervention areas for targeted enforcement measures.

Mixed Shipments – Trafficking Routes

About 40% of mixed shipments seized between 2016 and 2023 can be linked to Sub-Saharan Africa, with the vast majority destined for Asia.¹⁶¹ This trend suggests that consolidation is happening further upstream in trafficking supply chains, and not only at the point of sale. South Africa, Angola, and Namibia are the most common Sub-Saharan African countries appearing in the supply chains of seized mixed shipments.¹⁶² Seventy percent of mixed-shipment seizures coming out of these three Southern African jurisdictions are land seizures, emphasizing the countries' role in the sourcing and consolidation of both products as opposed to serving only as air or sea transit points.¹⁶³

Mixed shipments are most commonly transported between Africa and Asia via the air transit sector.¹⁶⁴ However, like individual elephant ivory shipments (Reference Section: From Here to There: The Role of the Transportation Industry), most transcontinental mixed product shipped by weight is transported via maritime cargo.¹⁶⁵ Trafficking networks that can source enough wildlife product to justify bulk maritime container shipments are more likely to have the ability to traffic more than one type of wildlife product.

Similarly to global shipments and reflective of consumer demand locations, China and Vietnam are the most common destination countries for mixed shipments.¹⁶⁶ India trails China and Vietnam, appearing in the supply chain of eight mixed shipments of ivory and rhino horn.¹⁶⁷ All of the seizures that occurred in India were land-based seizures containing no more than two ivory tusks and two rhino horns, and were not known to be linked to Africa.¹⁶⁸ Given the locality of these small shipments' supply chains, India's domestic rhino and elephant populations,¹⁶⁹ and the country's rare appearance in transcontinental trafficking routes,¹⁷⁰ it is likely that these shipments were sourced from native animal populations for domestic or regional consumption.

Mixed Shipments – Convergence With Other Wildlife Products

The more varied products in a shipment, the more complex the supply chain—and elephant ivory and rhino horn are far from the only products found in multiproduct shipments. More than half of seized shipments that contained ivory and rhino horn also included at least one other wildlife product, namely pangolin, leopard, lion, or tiger.¹⁷¹

If elephant ivory and rhino horn are already mixed in the same shipment, it is considerably more likely the shipment would contain additional wildlife products than if the ivory or rhino horn were packaged separately. The aforementioned other wildlife products were found in 8% of single-product ivory seizures and 6% of single-product rhino horn seizures.¹⁷² While some multiproduct seizures containing products derived from more than three different animals are the result of illegal taxidermy operations¹⁷³ or seizures of individuals' private collections,¹⁷⁴ others are indicative of consolidated trafficking networks.¹⁷⁵ In these cases, the networks responsible for mixed elephant ivory and rhino horn shipments demonstrate they have the resources and contacts necessary to obtain other wildlife products for consolidation and shipment to destination markets.¹⁷⁶

For example, on December 6, 2022, authorities in Maputo, Mozambique, seized a shipment of seven rhino horns, 55 “ivory tips,” 12 lion skulls, and an unspecified quantity of lion claws and lion bones.¹⁷⁷ To consolidate such a wide variety of products, the trafficker responsible for this shipment most likely had connections to several poaching groups and access to secure locations to store the products for a prolonged period before export. Not only does this activity speak to a high level of network sophistication but also to a complex series of steps of criminal activity preceding the seizure.¹⁷⁸ Traffickers often consolidate products before transcontinental export, aided by intermediaries with the skills, knowledge, and personal networks required to assemble and transport illicit shipments covertly.¹⁷⁹

Conclusion

Despite the COVID-19 pandemic's temporary disruption of elephant ivory and rhino horn trafficking operations, wildlife crime persists as an existential threat to these keystone species.¹⁸⁰ Collaborative, data-driven counter-wildlife trafficking operations can reduce the vulnerability of wild elephant and rhino populations. This report's analysis of 3,326 publicly reported ivory and rhino seizures reveals trends that can inform effective interventions, including:

- ➔ The average weight of seized ivory shipments has been on the rise since 2020.¹⁸¹ This suggests not only continued market demand but also the involvement of sophisticated transnational criminal networks that can bypass detection in multiple jurisdictions for each shipment. Rhino horn shipments, while more variable in quantity over recent years,¹⁸² continue to threaten wild populations of rhinos, especially in Namibia and South Africa.
- ➔ Both ivory and rhino horn are predominantly trafficked from Sub-Saharan Africa to Southeast Asia and China, with Angola, Mozambique, Namibia, and South Africa playing critical roles in their supply chains.¹⁸³
- ➔ This transcontinental movement of illicit wildlife products relies on the licit maritime and air transit sectors. Notably, traffickers tend to co-opt the maritime sector to move bulk shipments to destination markets, while they more often turn to the air sector for low-quantity packages.¹⁸⁴
- ➔ While less common than single-product shipments, mixed ivory and rhino horn shipments tend to contain large quantities of product and are typically trafficked alongside other high-value wildlife goods, such as pangolin, leopard, tiger, and lion products.¹⁸⁵ As a result, intercepting mixed shipments, or investigating networks linked to multiproduct shipments, can more effectively disrupt the illicit wildlife trade.

Wildlife seizure data shines a crucial light into an otherwise obscure operating environment. By monitoring global seizure data trends and augmenting quantitative findings with national-level reporting, law enforcement officials, prosecutors, and other counter-trafficking stakeholders can follow emerging trends and adjust their operations accordingly.

Recommendations

Government Agencies and Prosecutors

- ① Given that illicit wildlife trafficking is a transnational activity,¹⁸⁶ counter-wildlife trafficking officials with the mandate to manage protected areas, investigate wildlife crime, and prosecute perpetrators must also adopt a transnational approach to effectively track and dismantle the illicit networks involved.
 - » Investigative and prosecutorial coordination among authorities in Angola, Namibia, Mozambique, South Africa, and Vietnam is vital to combating wildlife crime. This report demonstrates that most seized rhino horn shipments can be traced to one or more of these jurisdictions.
 - » Joint training sessions, collaborative workshops, and the exchange of investigative data on high-priority transnational trafficking networks could build these stakeholders' capacities to combat wildlife trafficking.
- ② Prosecutors, judges, and legislative bodies bear the responsibility to mandate and implement deterrent sentences for wildlife crime. By considering wildlife trafficking and convergent crimes during case rulings, high fines and prison sentences can increase the risks of trafficking wildlife and discourage potential criminals.
 - » Jurisdictions with wildlife crime backlogs should consider developing Special Courts, with personnel trained specifically on case law surrounding ivory and rhino horn trafficking, to improve case processing and achieve deterrent sentencing.
- ③ Creating national wildlife case databases can enable national-level evaluation of prosecution and enforcement impacts and gaps. Further, transparent publication of seizure and poaching data, at least on an annual basis, can provide opportunities for regional-level analysis of trafficking trends and inform intervention monitoring.

Law Enforcement

- ④ As seizures of bulk and mixed shipments occur, law enforcement authorities should investigate the consignor and consignee of these shipments. By harnessing publicly available information and engaging in data exchange, investigators can develop crucial insights into the operations of the organized criminal networks driving the trade.
- ⑤ For seizures of rhino horn, law enforcement authorities should work together to conduct DNA sampling, such as through the Rhino DNA Index System (RhODIS) project, to identify the product's poaching location, develop evidence of syndicate convergence, and pinpoint the routes that trafficking networks use.
- ⑥ When it does not interfere with ongoing investigations, law enforcement officials can bolster the data environment by publishing detailed information on ivory and rhino horn seizures. Press releases can enable further investigations and increase the public's knowledge of the legal risks associated with participating in these crimes.
- ⑦ Law enforcement authorities can monitor wildlife seizure data for developing trends and adjust their responses accordingly to target emerging hotspots, increasingly common trafficking routes, and prevalent trafficking methods.

Media/Journalists

- ➔ Journalists can support counter-trafficking efforts through comprehensive and frequent reporting on ivory and rhino horn crimes, including large- and small-scale seizures and poaching incidents. More reporting strengthens public seizure data analysis, which can help counter-trafficking stakeholders tailor their responses.

Airport and Maritime Port Officials

- ➔ Transportation officials must maintain vigilance and strengthen measures to detect and seize illicit shipments of ivory and rhino horn. By monitoring global seizure reports and coordinating with other port authorities when shipments are seized, officials can align enforcement efforts around known and emerging trafficking routes.
- ➔ Capacity-building interventions at high-traffic transportation hubs, such as airports in Kenya, Ethiopia, Angola, the Democratic Republic of the Congo, and South Africa, can significantly disrupt trafficking operations, as they force criminal networks to shift tactics or rely on more high-risk or costly routes.

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