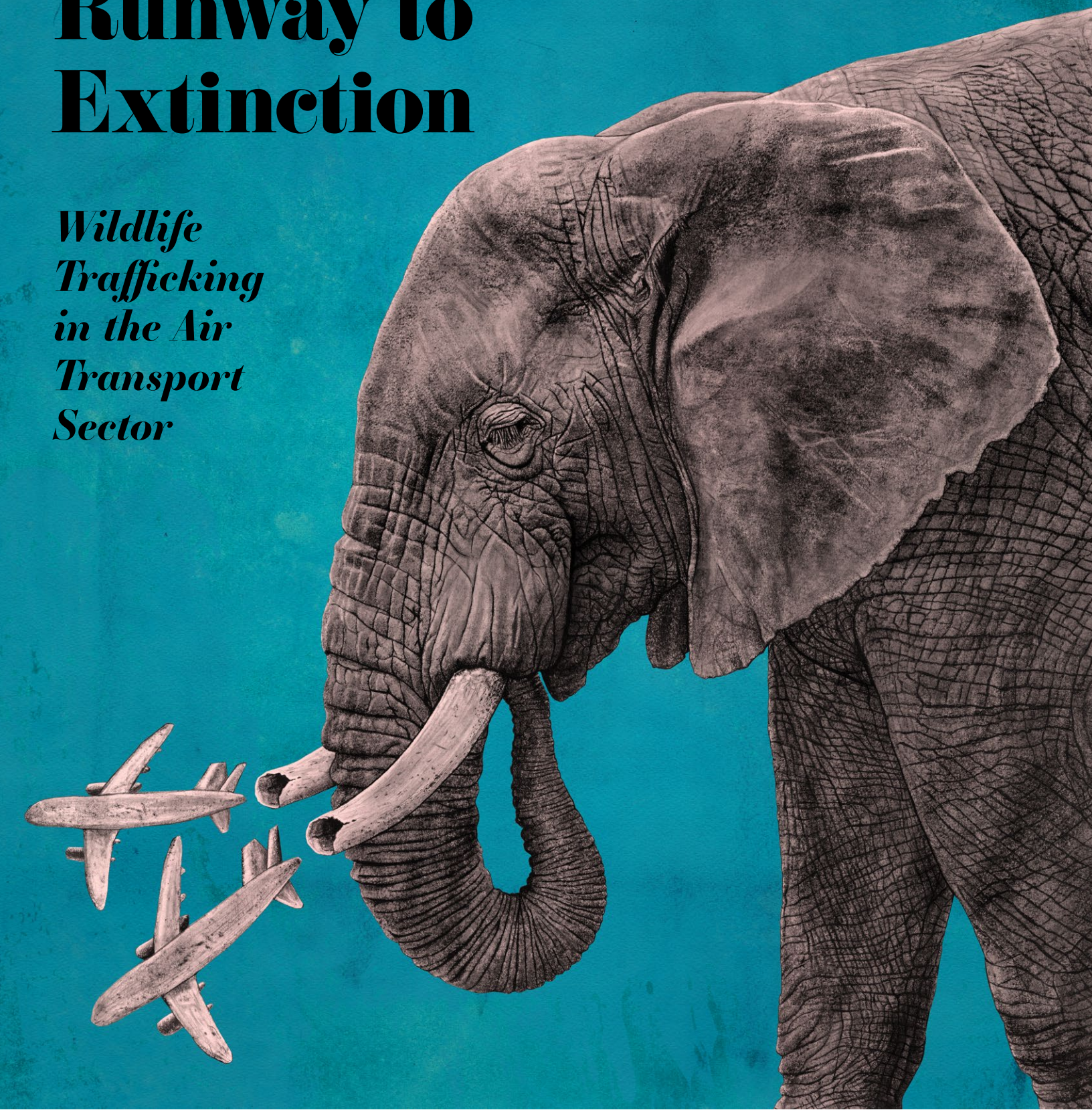
AFRICA REGION

Runway to Extinction

Wildlife Trafficking in the Air Transport Sector



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ROUTES

Reducing Opportunities for Unlawful Transport of Endangered Species

The USAID Reducing Opportunities for Unlawful Transport of Endangered Species (ROUTES) Partnership brings together transport and logistics companies, government agencies, development groups, law enforcement, conservation organizations, academia and donors to disrupt wildlife trafficking activities, and forms a key element of the concerted international response to addressing wildlife poaching and associated criminal activities worldwide.

At the heart of ROUTES is a core group of partners collaborating with the U.S. Government and the transport sector that includes the Airports Council International (ACI), Center for Advanced Defense Studies (C4ADS), Freeland, the International Air Transport Association (IATA), TRAFFIC and WWF.

For resources referenced in this document or for more information visit:

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EXECUTIVE SUMMARY

Once thought of as largely confined to Africa and Asia, wildlife trafficking has become increasingly prevalent all over the world, now ranking behind only drugs, human, and arms trafficking as the most valuable type of international organized crime by estimated annual value.[1] Wildlife trafficking's rise has been supported by the world's increasingly interconnected systems of finance, communication, and transport, which have brought once isolated source regions in remote areas closer and closer to large demand markets in North America, Europe, and Asia. The proliferation of air transport has exacerbated the issue even further; a trip that once would have taken months by land and by sea may now take 24 hours or less of travel in comparative calm and comfort.

While these changes have been boons for the global economy, they have also put wildlife at risk like never before.[2] The negative side effects of this economic progress are immediately evident in the substantial population decline of vulnerable species over the past few decades alone. If wildlife poaching and trafficking continues unabated at this scale, regional ecosystems face not just species extinction, but complete collapse. In the face of such catastrophic overexploitation, steps must be taken to reverse the damage caused by the creation of a global marketplace.

There is a silver lining, however; as wildlife traffickers have increasingly come to rely on income derived from wildlife native to other world regions, they have made themselves dependent on the international systems of transportation that made their illegal trade possible in the first place. As a result, implementing preventative measures against wildlife traffickers using international transport systems could increase the cost associated with trafficking wildlife to such an extent that traffickers may abandon the attempt.

To that end, the USAID Reducing Opportunities for Unlawful Transport of Endangered Species (ROUTES) Partnership was formed in 2015 to bring together transport and logistics companies, government agencies, development groups, law enforcement, conservation organizations, academia, and donors to disrupt wildlife trafficking through the air transport sector. C4ADS produces the data and analysis helping to guide the ROUTES Partnership's activities, and has so far published two reports, *Flying Under the Radar* (2017) and *In Plane Sight* (2018), examining trafficking trends, routes, and methods in airports for ivory, rhino horn, reptiles, birds, pangolins, mammals, and marine species since 2009.

While both previous reports focused on identifying trends associated with trafficking of different types of wildlife beginning in 2009, *Runway to Extinction* shifts gears, concentrating instead on recent trafficking trends (2016 – 2018) in six world regions: Africa, the Americas, Asia, Europe, the Middle East, and Oceania.[3] Still, each successive report has shown that wildlife trafficking by air varies little from year to year and region to region, and so many of the key findings outlined in Runway to Extinction echo conclusions drawn in *Flying Under the Radar* and *In Plane Sight*.

In *Runway to Extinction*, as in *In Plane Sight* and *Flying Under the Radar,* C4ADS analyzes the seizure data in the C4ADS Air Seizure Database to determine wildlife trafficking trends, as well as the routes and trafficking methods utilized by wildlife traffickers. **The findings in this report are not meant to represent the entirety of wildlife trafficking activity through the air transport sector, but are intended to showcase the patterns visible within the C4ADS Air Seizure Database, with the understanding that a different or more complete dataset may reflect different results.** Each section of the report should be read with this in mind.

Note that the use of seizure data, while currently the best method available for investigating trafficking activity of all types, can lead to a variety of mistaken conclusions. For instance, better public seizure reporting may create the appearance of high levels of trafficking activity where only low levels exist. Still, seizure data, taken together with the appropriate caveats, provides a good picture of overall trafficking activity, and can be used to direct future anti-trafficking efforts.

Overall, *Runway to Extinction* finds wildlife trafficking to be global in scope, with trafficking attempts reported more and more frequently. This report's regional focus has emphasized the tendency of wildlife trafficking trends, routes, and methods to be determined more by the type of wildlife being trafficked than by the region it is trafficked in. Relatedly, each region's exposure to wildlife trafficking activity is driven primarily by its proximity to specific source regions and demand markets. Finally, wildlife traffickers tend to exploit the same vulnerabilities within airports that other traffickers do, giving enforcement authorities and the private sector an opportunity to address the weak points identified within this report and strengthen their defenses.

1 Nellemann, C. (Editor in Chief); Henriksen, R., Kreilhuber, A., Stewart, D., Kotsovou, M., Raxter, P., Mrema, E., and Barrat, S. (Eds). The Rise of Environmental Crime – A Growing Threat to Natural Resources Peace, Development And Security. United Nations Environment Programme and RHIPTO Rapid Response–Norwegian Center for Global Analyses, 2016. http://unep.org/documents/itw/environmental_ crimes.pdf.

2 Refer to **Appendix I: Security & Health Risks of Wildlife Trafficking** for a discussion of some of the risks posed by wildlife trafficking to the aviation industry.

3 Data and graphics from the entire C4ADS Air Seizure Database (2009 through 2019) can be found on the ROUTES Dashboard at routesdashboard.org.

AFRICA

MAIN TAKEAWAYS

African countries are primarily origin points.

Africa is a prominent source region for ivory, rhino horn, pangolin, marine species (abalone, European eels), and mammals (cheetah cubs, lion claws, etc.).

Specific countries (Kenya, South Africa, and Ethiopia) feature prominently as transit points due to their large international airports with varied flight routes and/or their geographic position closer to demand regions.

One country in particular, Kenya, has displayed a unique ability to seize trafficked wildlife in transit by relying in part on teams of sniffer dogs that reduce screening time while improving screening effectiveness.

Ivory seizures in air transport have slightly decreased by volume while rhino horn seizures have increased in number between 2016 and 2018.

Checked luggage trafficking instances may become more prominent over time (and air freight trafficking instances correspondingly less prominent) if wildlife product processing moves closer to origin regions, since seizure data suggests worked wildlife products are more likely to be transported by checked luggage or by passengers than raw ivory or rhino horn.

FIGURE 1

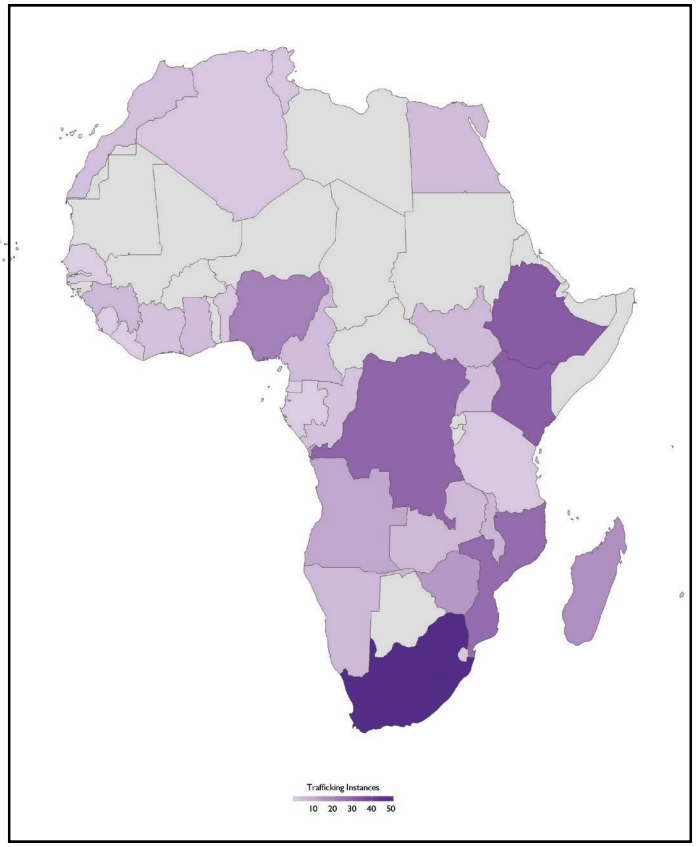


Figure 1. Heat map for wildlife and wildlife product trafficking instances in Africa's air transport sector (2016 – 2018)

The heat map represents the total number of times that a successful or planned trafficking instance was recorded for each country. The map includes instances where the product did not actually enter a country because it was seized earlier in the route. Note that the heat map reflects only those trafficking instances that were stopped in airports.

Those countries that appear prominently in the African heat map have generally either one or both of the following: significant remaining elephant, rhino, pangolin, mammal, bird, or reptile populations (South Africa, Mozambique, the DRC, Madagascar), or large international airports with many connecting flight routes to demand regions (Nigeria, Kenya, Ethiopia).

Importance of land routes

It is possible that some countries are underrepresented in the heat map because wildlife and wildlife products may be transported by land from one country to another to access airports that are perceived to be advantageous. For instance, it is possible that wildlife poached in Niger, Chad, or Cameroon is driven to one of Nigeria's multiple international airports with connecting flights to Europe and East Africa. This tactic has been used before by traffickers driving products back and forth over the Kenya-Uganda border to evade higher levels of enforcement activity and awareness.[i]

Emergence of North Africa

North African countries are not generally considered prominent countries for wildlife trafficking activity, particularly in comparison to their southern and eastern neighbors. But critically endangered European eels, which are seized increasingly frequently in European airports, are native to North African countries Algeria, Morocco, and Tunisia. Recent enforcement busts in Europe, particularly in Spain
and Portugal, have revealed small-scale but well-organized trafficking networks shipping juvenile eels in the tens of thousands to Asian demand markets through prominent North African and European airports (see European Eel Trafficking).

Other North African trafficking instances either involved reptiles or were passing through North Africa on the way from West Africa to Europe or Asia.

FIGURE 2

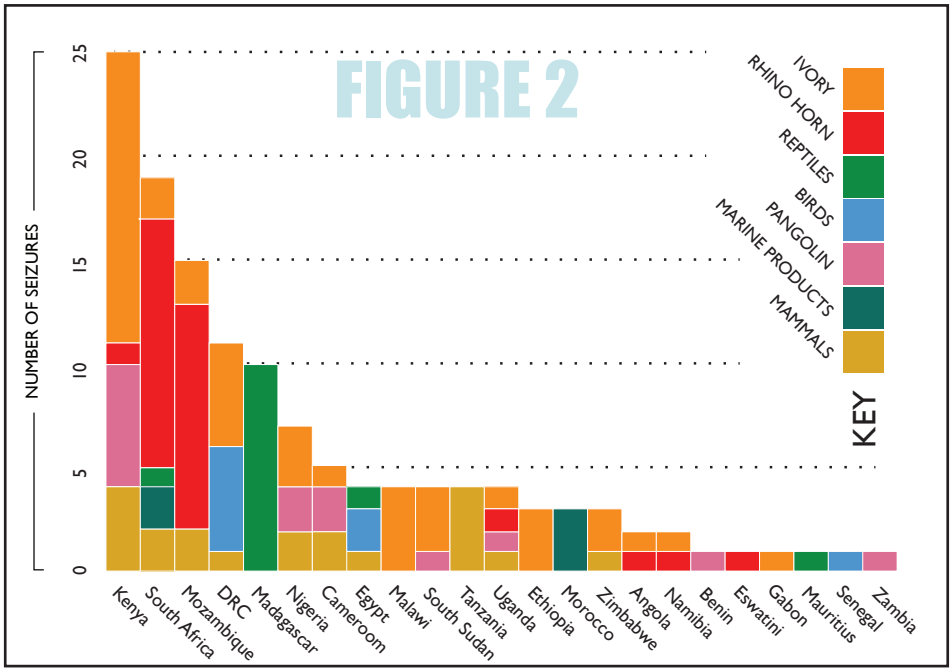


Figure 2. Total seizure count by African country (2016 – 2018)

Figure 2 displays the data within the Africa heat map in more detail. Prominent countries from the heat map are distributed by seizure count, highlighting those countries where enforcement efforts have been most effective.

FIGURE 3

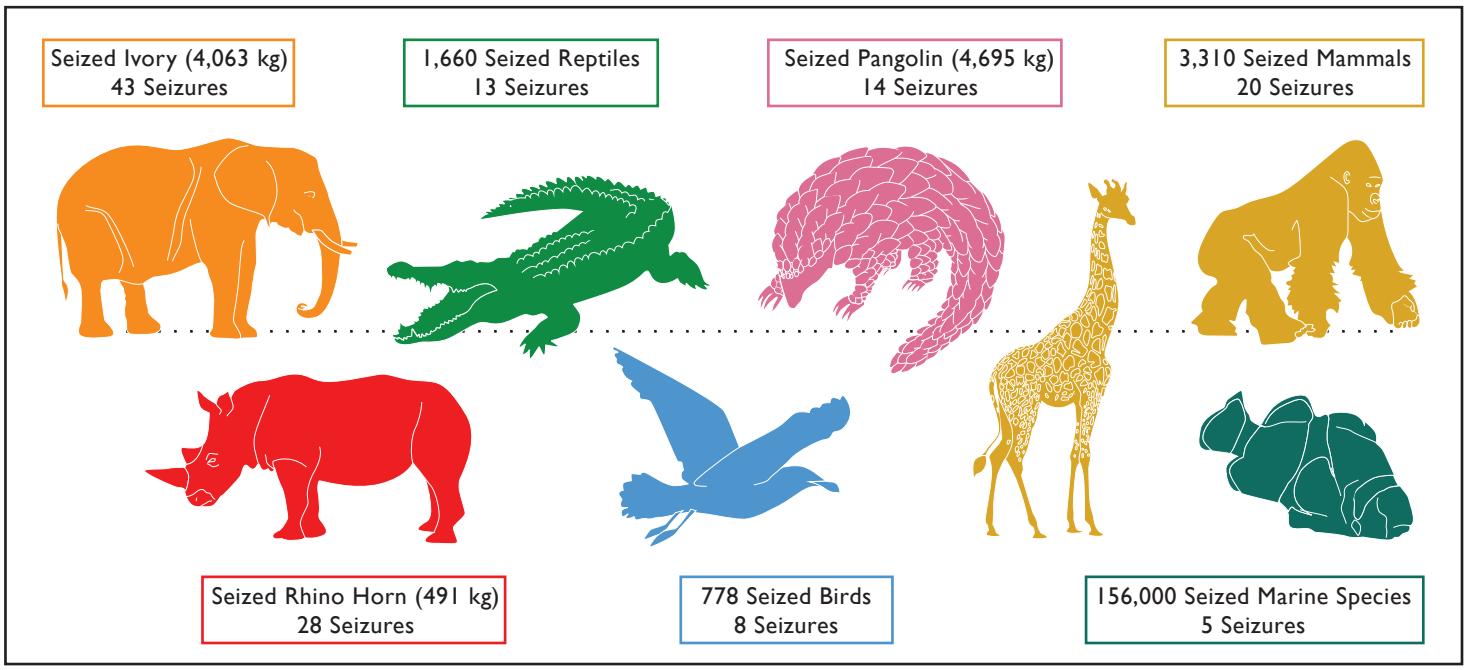


Figure 3. Number of seizures in Africa of each type of wildlife or wildlife product (2016 – 2018)

Diverse types of wildlife seized

Enforcement officials in African airports have seized a wide array of wildlife and wildlife products over the past three years, although ivory and rhino horn seizures are most common. African biodiversity and the many different biomes present within the continent make Africa an unusually plentiful source region for traffickers targeting everything from elephants to lions, European eels, and abalone.

Prominence of Kenya and South Africa

IMPORTANCE OF TRANSIT HUBS

Between 2016 and 2018, Kenya counted the most wildlife seizures of any African country according to the C4ADS Air Seizure Database. Kenya's prominence is primarily due to two factors: Jomo Kenyatta Airport's role as a major hub between flight routes originating in Africa and destined for the Middle East and Asia, and Kenyan enforcement's awareness of the prevalence of wildlife trafficking activity in their airports. This likely leads to both the country's high seizure count and the fairly diverse array of wildlife seized there (including ivory, rhino horn, pangolin scales, and various mammal products).

IMPORTANCE OF TRANSIT HUBS

Although South Africa is a common origin point for ivory, rhino horn, and marine species trafficking, the country also plays a prominent role as a transit location for trafficking instances originating elsewhere in Southern Africa. South Africa's OR Tambo Airport in Johannesburg counts dozens of connecting flights a day to the Middle East and Southeast Asia, providing traffickers in the region with a gateway to demand markets in other world regions. The airport's geographic location and flight routes mean it often acts as a funnel for a significant amount of wildlife trafficking leaving Southern Africa.

Both Kenya and South Africa appear as two of the most prominent wildlife trafficking countries in Africa by seizure count, at least in part due to their role as countries with common transit airports. But customs and enforcement in most airports find identifying trafficked goods in transit difficult, if not impossible, given the short duration of most layovers. Most common transit countries, like Ethiopia, count comparatively few seizures in part because of this.

RELIANCE ON SNIFFER DOGS & EMERGING TECHNOLOGIES TO IMPROVE SCREENING

Seizure rates in Kenya and South Africa may have outpaced seizure rates in other common transit countries because Kenyan and South African officials, noting the high numbers of wildlife trafficking instances leaving their airports only to be seized elsewhere, have dedicated resources to screening passengers and cargo on departure and in transit. To address the difficulty of manually screening high volumes of passengers and shipments effectively and quickly, enforcement agencies in both countries have chosen to rely on sniffer dogs.[i] For instance, after a series of seizures in Asia arriving on flights from South Africa, South African authorities began "increased enforcement interventions on outbound flights at the cargo area of OR Tambo Airport" using sniffer dogs.[ii] The strategy appears to be helping; in January 2019, a South African Revenue Service detector dog, Lizzy, discovered 36 rhino horn pieces hidden under "laminated wooden sheets in four boxes…filled with doormats and decorative items."[iii]

[i] One sniffer dog is able to check 40 suitcases for drugs in 100 seconds.
Source: "X-Ray Mega Airport: Crossroads of the World." Smithsonian Channel, 5 Aug. 2016. www.smithsonianchannel.com/videos/how-drug-sniffing-dogs-search-your-checked-luggage/50078.

FIGURE 4

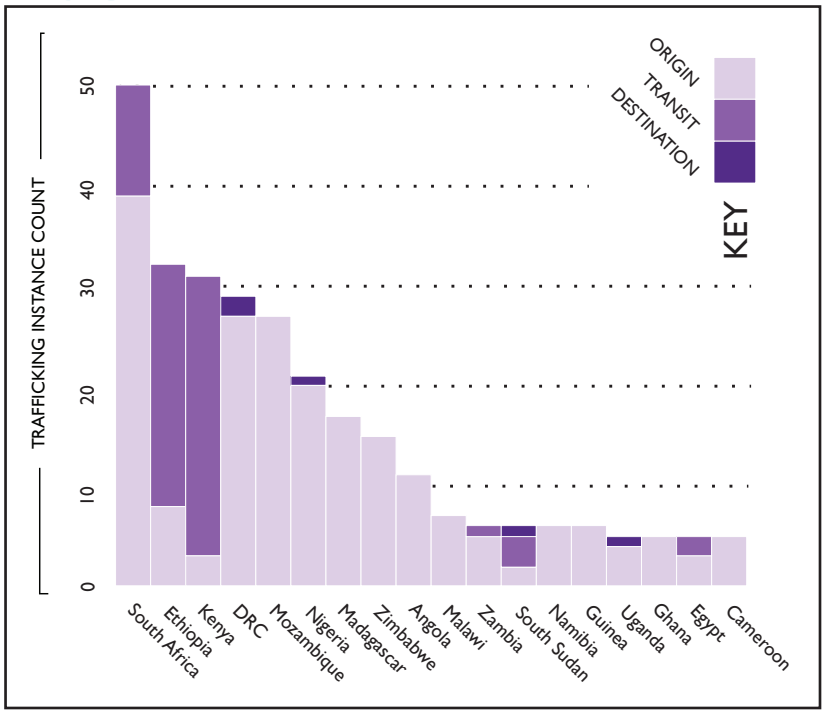


Figure 4. Country-level flight route information for African countries with five or more trafficking instances (2016 – 2018).

Only trafficking instances for which flight route information exists were included. The data is split by country, rather than airport, to account for transit information reported at the country level.

FIGURE 5

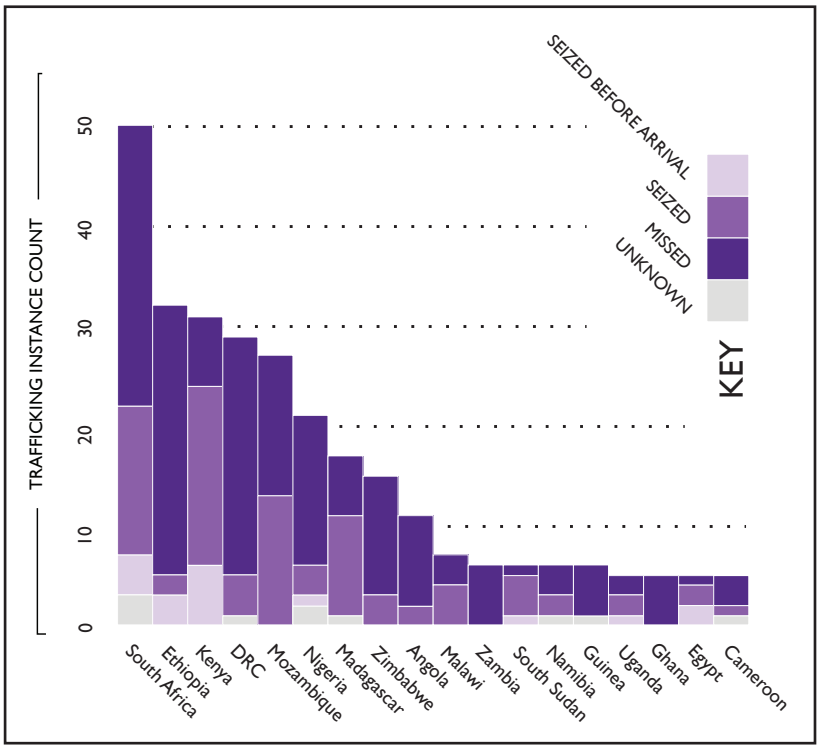


Figure 5. Point of seizure within the supply chain by African country (2016 –2018).

Only trafficking instances for which flight route information exists were included. The data is split by country, rather than airport, to account for transit information reported at the country level.

Figure 4 emphasizes the importance of African airports as origin points for trafficked wildlife and wildlife products given the continent's diverse array of species. Only three countries – Kenya, Ethiopia, and South Sudan – are not predominantly origin countries.

Difficulty of making seizures at origin

Customs authorities, the agencies usually charged with intercepting wildlife, generally do not conduct screening on departure. As a result, most origin countries miss the majority of trafficking activity leaving their airports. Figures 4 and 5 reveal this phenomenon in abundance in Africa, where most countries act as origin points for wildlife trafficking and simultaneously do not stop the majority of trafficking instances leaving by air.

Countries like South Africa, Mozambique, and Madagascar appear to be comparatively more adept at discovering wildlife trafficking instances before they depart. These countries' higher seizure numbers are likely driven by higher levels of trafficking activity and higher levels of wildlife trafficking awareness amongst officials. Each of the three countries is known to struggle with ongoing poaching activity within their borders (primarily rhino poaching in South Africa and Mozambique, and reptile poaching in Madagascar).

Seizures in transit

Only four African countries appear to make many seizures in transit: South Africa, Kenya, Ethiopia, and South Sudan. Both South Africa and Kenya experience high levels of trafficking activity, and have adapted to counteract the exploitation of their airports by wildlife traffickers through the use of sniffer dogs and other enforcement strategies. Ethiopia and South Sudan's seizures, however, are less expected.

Ethiopia, with the second-highest number of transit instances in Africa, exhibits seizure numbers that clearly reflect its status as a transit country, with Ethiopian authorities stopping only three of the 32 known trafficking instances that passed through its airports (a 9% success rate). But South Sudan has a comparatively high seizure count, especially given limited resources in the country. For example, after sniffer dogs discovered 500 kg of ivory in Juba Airport in 2016, Khamis Adieng of South Sudan's National Wildlife Service said, "We have no modern technology…and that is why it has become easy for [smugglers] to pass through South Sudan."[iv] Adieng's comment suggests that wildlife traffickers smuggle animals and products through South Sudan frequently without being seized, creating the appearance of only low levels of trafficking where really trafficking is prevalent and successful.

SNIFFER DOGS

As air passenger and cargo volumes increase, customs and enforcement authorities will have to expedite screening processes while at the same time improving screening effectiveness. Over the past several years, officials in an increasingly large number of airports have relied on sniffer dogs to help screen passengers, checked luggage, and air freight shipments quickly and effectively.

Dogs can be trained to detect everything from cancer to bed bugs, currency, and invasive species, and have been used by enforcement authorities to identify explosives and drugs since at least the mid-1900s.[v] But it was only in the 2000s that enforcement began to train dogs to detect wildlife at border crossings and other ports of entry. Two of the first countries to rely on wildlife sniffer dogs (also called detector dogs), Germany and Kenya, trained their first sniffer dog teams in 2008[vi] and 2009[vii] respectively. Since then, authorities have consistently made wildlife seizures based on sniffer dog detections, in one instance making four ivory seizures in one week in Jomo Kenyatta Airport.[viii] After the seizures, Mark Kinyua of KWS noted, "It speaks volumes if you can arrest people like that consecutively. It is a huge deterrent."[ix]

Image 1. Sniffer dog Rocco and Kenya Wildlife Service canine handler Patrick Musau check suitcases for wildlife at Jomo Kenyatta Airport in Nairobi, Kenya. Source: AFP

Sniffer dogs are particularly valuable given their ability to smell wildlife despite traffickers' attempts to hide smuggled animals or products. For example, dogs can smell through heavy packaging and other competing smells like pepper and tobacco,[x] and can detect small quantities or even powder versions of various wildlife products.[xi] They can also be trained to detect several different types of contraband, meaning one dog can be used to find explosives, drugs, and smuggled wildlife.

Sniffer dogs' effectiveness in the airports where they are deployed has not been lost on enforcement agencies in other countries. In the past few years, sniffer dog teams have joined the screening process at airports in Namibia,[xii] and in Kamuzu Airport in Malawi,[xiii] Maputo Airport in Mozambique,[xiv] and various other airports throughout Africa and Europe.

Note, however, that sniffer dogs are likely most helpful when their successes are well-reported, alerting traffickers to their presence and creating a deterrent effect. While this means that airports with sniffer dogs may see seizures fall as traffickers opt for alternate routes, it also means that enforcement in nearby ports and border crossings must be prepared to deal with an increase in trafficking attempts. For example, in 2018, Steven Njumbi with IFAW stated that as sniffer dogs became more active at Jomo Kenyatta Airport in Kenya and Entebbe Airport in Uganda, traffickers began relying more heavily on Malaba and Busia on the Kenya-Uganda border to smuggle ivory.[xv]

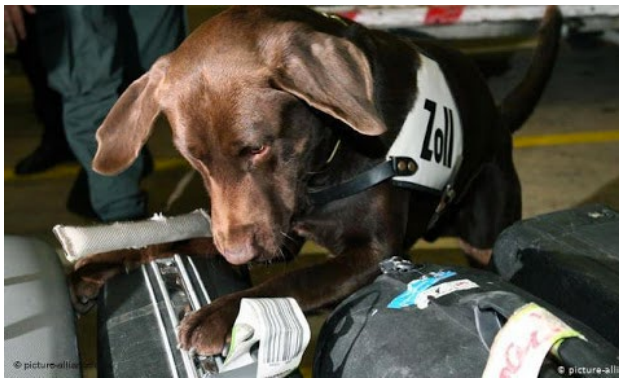
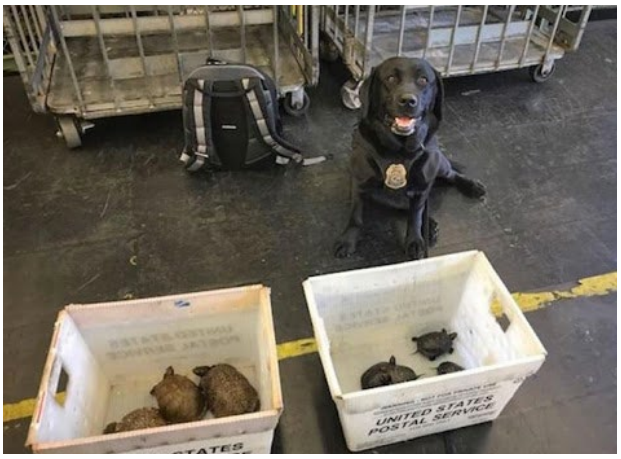


Image 2. A German sniffer dog appears to smell hidden live animals or wildlife products in a suitcase. Source: picture-alliance/dpa

Still, the successes of sniffer dogs speak for themselves. As Birgit Braun with WWF told Germany's Deutsche Welle, "A dog's nose is more effective than any technical equipment they have at the airport."[xvi] As global reliance on air transport continues to increase, training sniffer dogs to detect wildlife and other contraband will be one of the most effective strategies available to enforcement to expedite and improve screening in airports around the world.



Images 3. A US Fish and Wildlife Service Detector Dog, Lockett, poses with turtles she discovered. Source: US Fish and Wildlife Service

FIGURE 6

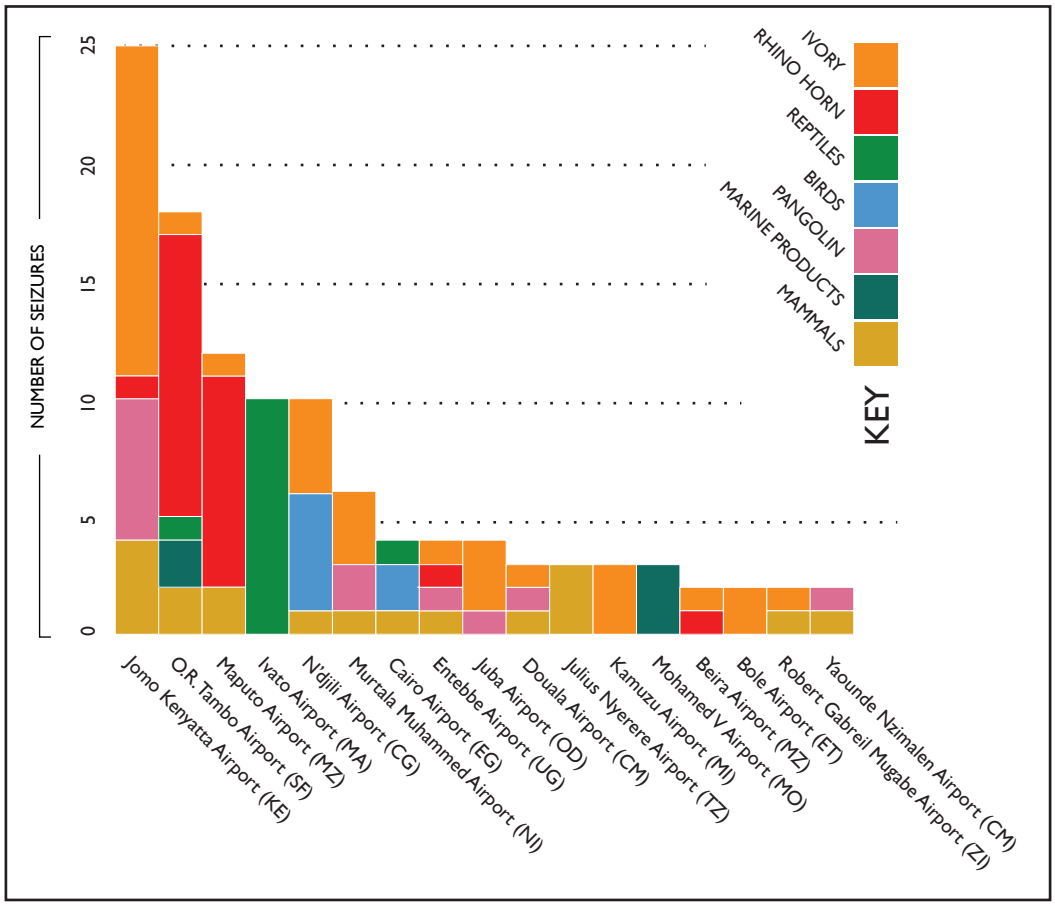


Figure 6. Airport seizure count for African airports with two or more seizures (2016 – 2018)

Three countries had multiple airports with two or more wildlife seizures between 2016 and 2018: Mozambique (Maputo Airport and Beira Airport), Nigeria (Murtala Muhammed Airport and Mohamed V Airport), and Cameroon (Douala Airport and Yaounde Nsimalen Airport).

Seizures in transit countries are most diverse

Enforcement officials in African airports made a wide variety of wildlife and wildlife product seizures between 2016 and 2018. Airports with the most diverse set of seizures tended to be the primary international airport in a prominent transit country (e.g. Kenya's Jomo Kenyatta Airport, South Africa's OR Tambo Airport, andUganda's Entebbe Airport).

High seizure numbers at certain origin airports

Despite the difficulties inherent in confiscating trafficked wildlife and wildlife products on departure, authorities in common origin points Maputo Airport, Mozambique; Ivato Airport, Madagascar; and N'djili Airport, DRC made a high number of wildlife seizures. Reports of seizures in all three airports gave few indications as to what might be driving their unusually high seizure counts – the method authorities used to detect the seized wildlife varied significantly from x-ray, to suspicious behavior, to "discovered during check-in." The absence of a particularly effective or coordinated identification strategy suggests that these high seizure counts may be reflecting high levels of trafficking activity emanating from these countries.

Seizures tend to cluster in certain areas

Seizures of different types of wildlife tended to occur along established supply chains for each species. Rhino horn seizures, for instance, occurred exclusively in Southern Africa (OR Tambo Airport, Maputo Airport, and Beira Airport) where rhino populations still exist in significant numbers, and in common transit airports for rhino horn trafficking instances moving from Africa to Asia (Jomo Kenyatta Airport and Entebbe Airport).

Similarly, airports in exclusively origin countries (i.e. countries that are rarely or never used as transit points) seized only wildlife native to their country. For example, Ivato Airport in Madagascar, a country well-known for its unique reptile species, made only reptile seizures.

FIGURE 7

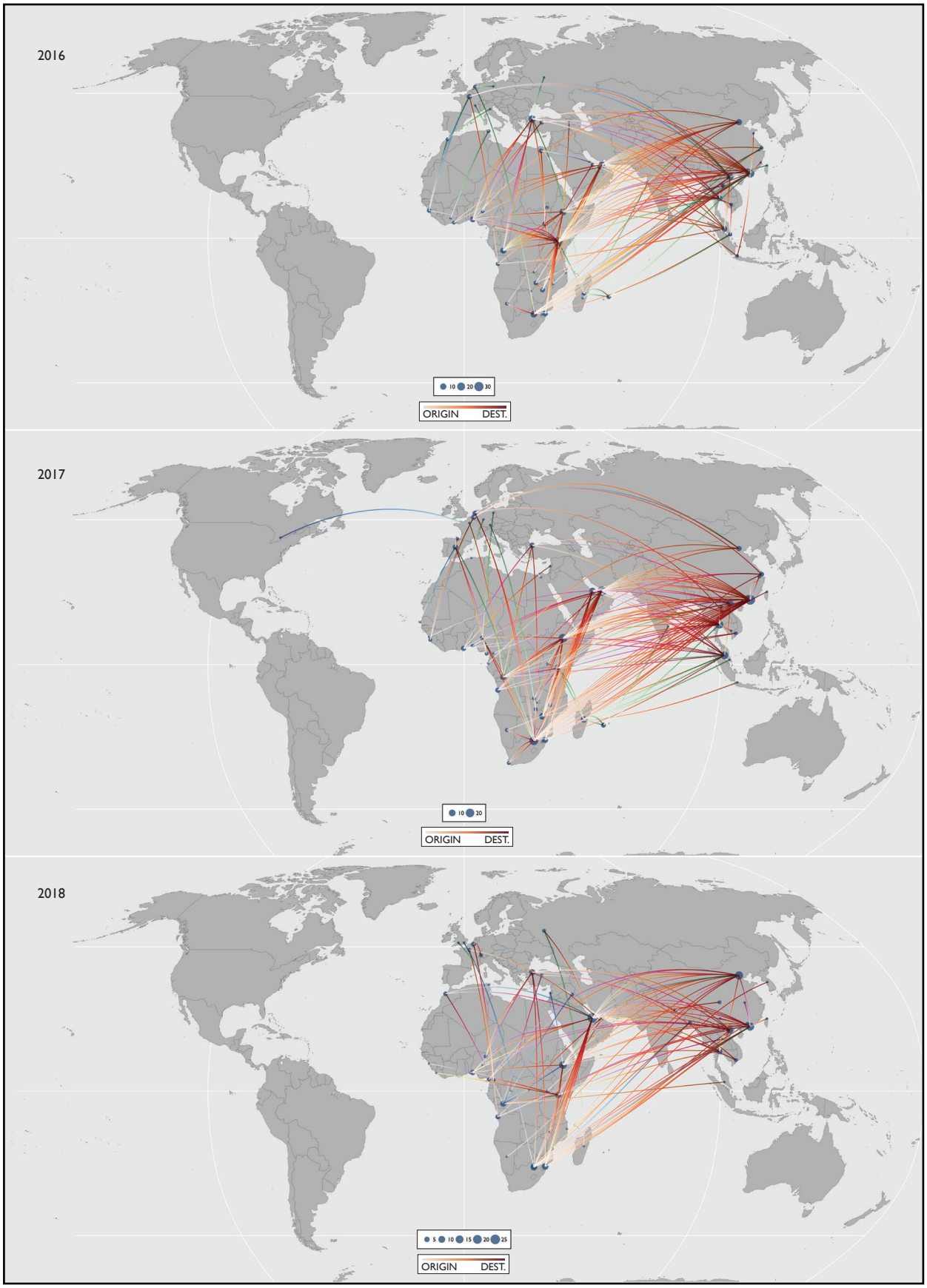


Figure 7. African air trafficking routes recorded in the C4ADS Air Seizure Database (2016 – 2018)

Circle size indicates the number of flights carrying illicit wildlife that departed from or arrived in a particular city. Capital cities are used when specific airports are unavailable.

The routes maps for African air trafficking routes indicate consistently high seizure levels in Africa between 2016 and 2018, although seizures in 2018 appear fewer than in the previous two years, with only 106 trafficking instances counted in the C4ADS Air Seizure Database in 2018 compared to 145 and 157 in 2016 and 2017 respectively. The routes maps further reveal that Asia is the primary destination region for most wildlife and wildlife products leaving Africa, although some species – particularly reptile species – are often destined for Europe.

Ivory trafficking cedes to rhino horn trafficking

In 2016, ivory trafficking flight routes appeared prominently throughout most of Africa, generally passing through East Africa and the Middle East on the way to East Asia. Over the next two years, ivory flight routes seemed to diminish, and other categories of wildlife trafficking became more prominent. At the same time, rhino horn flight routes appeared to increase in 2017, with one direct flight between Johannesburg and Hong Kong exhibiting especially high levels of rhino horn trafficking activity. By 2018, both ivory and rhino horn trafficking activity seemed to have decreased slightly, although common flight routes for both remained (e.g. Johannesburg → Hong Kong and Johannesburg → Doha → China for rhino horn, and various African countries → Addis Ababa → China for ivory).

FIGURE 9

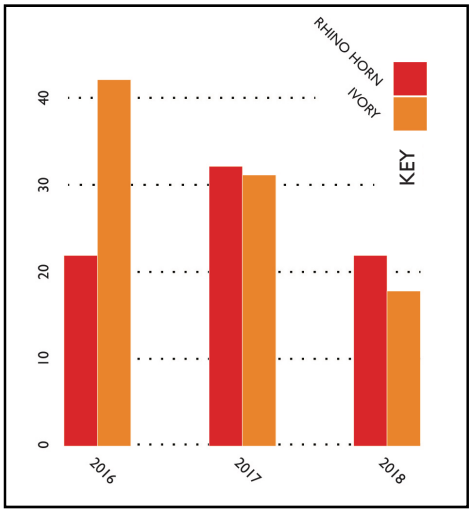


Figure 9. Ivory and rhino horn trafficking instances (2016 – 2018)

Importance of transit hubs

Europe, the Middle East, and East Africa all emerged as clear transit regions for wildlife trafficking instances leaving Africa. Within each area, certain airports stood out as particularly important, such as Jomo Kenyatta Airport in Kenya, Bole Airport in Ethiopia, Dubai Airport in the UAE, Doha Airport in Qatar, Charles de Gaulle Airport in France, and Istanbul Ataturk Airport in Turkey. Each of these airports was used consistently by traffickers of different types of wildlife and wildlife products.

But some common transit hubs visible in the Africa routes map were used more frequently by specific types of wildlife traffickers. For instance, smuggled reptiles leaving Madagascar almost always flew through either Jomo Kenyatta Airport in Kenya, Sir Seewoosagur Ramgoolam Airport in Mauritius, or Roland Garros Airport on Reunion Island on the way to Southeast and East Asia. Similarly, OR Tambo Airport was clearly a key transit hub for rhino horn leaving other Southern African countries such as Namibia, Mozambique, Eswatini, and Zambia and destined for China.

IMPORTANCE OF TRANSIT HUBS

FIGURE 8

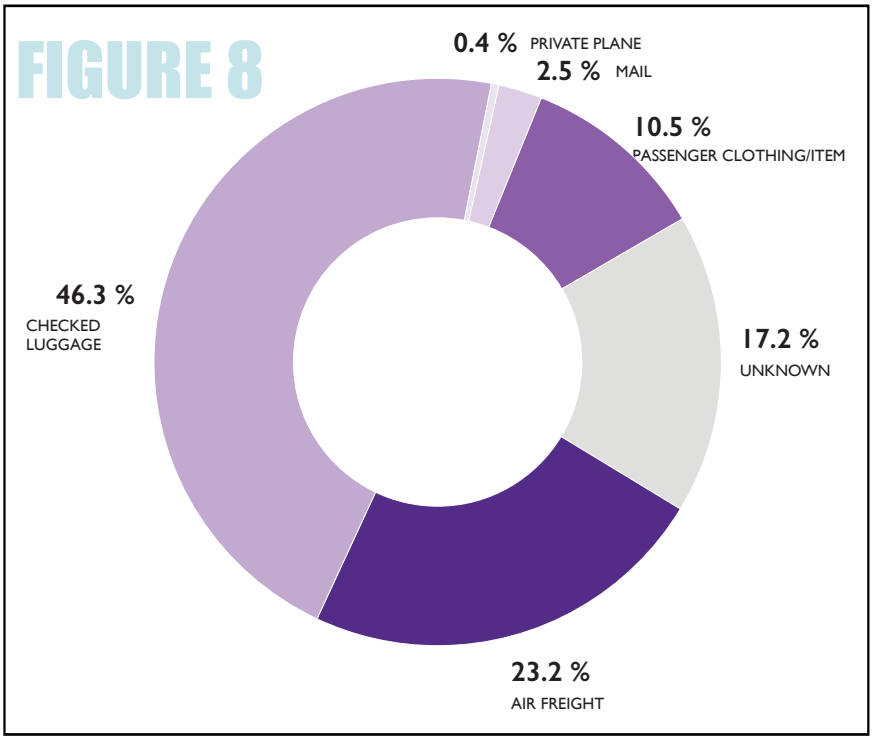


Figure 8. Transport methods for African trafficking instances in the air transport sector (2016 – 2018)

More wildlife trafficking instances moving through Africa were transported by checked luggage (47%) than by any other transport method.[2] Ivory and pangolin, however, were more likely to be smuggled by air freight, and together made up 48% of African air freight instances in the C4ADS Air Seizure Database.

Prevalence of air freight

Wildlife traffickers in Africa, Asia, and the Middle East were more likely to smuggle contraband in air freight than traffickers in the Americas, Europe, or Oceania. This was likely driven by ivory and pangolin scale supply chains, both of which generally originate in Africa and pass through the Middle East on the way to Asia. Other African species and wildlife products

WILDLIFE TRAFFICKING BY MAIL LIKELY UNDERREPRESENTED

[2]See previous reports Flying Under the Radar (2017) and In Plane Sight (2018) for more detailed information on trafficking methods used for different types of wildlife.
Trafficking methods used for ivory, rhino horn, reptiles, pangolins, and mammals are all relevant to wildlife trafficking by air in Africa.

trafficked in air freight between 2016 and 2018 included rhino horn, dried seahorses, and abalone, all of which occasionally followed the same routes as ivory and pangolin scales through the Middle East and into Asia.

Wildlife product processing increasingly occurs in source regions

Over the past few years, seizures and other enforcement actions in Africa have indicated that wildlife product processing is increasingly occurring in source or origin countries, rather than near demand markets. This phenomenon is likely driven by the challenges inherent in trafficking raw materials over long distances; raw ivory and raw rhino horn, for instance, are much larger and more unwieldy than worked ivory and rhino horn products. Trafficking networks may believe that processing ivory and rhino horns in Africa and shipping final or near-final products to demand markets helps them evade detection, since worked wildlife products are easier to carry, often difficult to identify as wildlife derivatives, and can be used to argue that traffickers are merely tourists, unaware of wildlife trafficking regulations.

Because processing seems to be moving closer to source and origin regions in Africa, air freight trafficking instances may fall, as fewer raw ivory shipments leave African airports for Asian destinations. Simultaneously, checked luggage and passenger trafficking instances may rise as worked ivory and processed rhino horn pieces or powder are increasingly moved instead. This is already visible in ivory seizure data in the C4ADS Air Seizure Database, which shows a marked increase in worked ivory seizures in airports over the past couple of years. For example, worked ivory was found in 28% of ivory air instances in C4ADS's data in 2016, 54% in 2017, and 78% in 2018.

Few trafficking instances moved in passenger clothing or carry-on bags

Of all the world regions covered in this report, Africa had proportionally the fewest trafficking instances carried by passengers in their carry-on bags or on their bodies (11%), with the exception of Oceana, which counted none. If wildlife product processing continues to shift to source regions in Africa, however, seizures of worked wildlife products carried by passengers may increase.

"...wildlife product processing is increasingly occurring in source or origin countries, rather than near demand markets."

WILDLIFE PRODUCT PROCESSING INCREASINGLY OCCURS IN SOURCE REGIONS

TRANSPORT METHOD VARIES BY SPECIES

WILDLIFE PRODUCT PROCESSING INCREASINGLY OCCURS IN SOURCE REGIONS

TRANSPORT METHOD VARIES BY SPECIES

IMAGE 4

Image 4. 2.04 kg of painted rhino horn pieces discovered inside the pockets and interlining of a pasenger's jacket, as well as hidden in a pair of socks in his check-in bag in Hong Kong Airport. Source: Hong Kong Customs

EUROPEAN EEL TRAFFICKING NETWORKS

Over the past few years, known European eel trafficking instances appear to have spiked. Of the 21 European eel seizures in the C4ADS Air Seizure Database between 2016 and 2018, 5% occurred in 2016, 25% occurred in 2017, and 70% occurred in 2018. This is particularly concerning given that European eels are both endangered and generally trafficked in large quantities. In 2018 alone, C4ADS identified 14 seizures totaling around 3,757,000 eels.[xvii]

Many of these European eel seizures exhibited similar characteristics, such as:

- Originated in Europe or Northern Africa, usually Spain, Portugal, or Morocco
- Destined for China or Vietnam
- Packed alive in plastic bags filled with water
- Transported in several specially adapted checked bags
- Transported in air freight and misdeclared as another marine species (e.g. prawns, chilled fish, octopuses)
- Involved tens or hundreds of thousands of eels
- Seized in Europe or Northern Africa

For example, in February 2018, Spanish Civil Guard agents discovered 250 kg of European eels in a shipment declared as barnacles in the air freight terminal of Madrid-Barajas Airport.[xviii] The eels had been packed in several white Styrofoam boxes filled with water and ice in order to keep the eels alive until they reached their destination in Vietnam.

Image 5. European eels found in white styrofoam boxes by a Spanish Civil Guard. Source: Spanish Civil Guard

Two months later, in April 2018, the Spanish Civil Guard discovered another 600 kg of European eels hidden in a shipment declared as octopuses at Madrid-Barajas Airport.[xix] The eels had once again been packed with bottles of ice in an attempt to keep the eels alive during transport to Hong Kong.

Other seizures involved a similar number of eels, but were hidden in checked bags carried by one to three traffickers instead of in air freight shipments. For example, on January 19, 2018, eight individuals were intercepted attempting to smuggle 317 kg[xx] of eels packaged in plastic bags in 16 suitcases from Lisbon Airport to Vietnam.[xxi] Similarly, on February 27, 2018, officials in Faro Airport arrested three Chinese men with 50 kg[xxii] of eels in plastic bags in nine suitcases on their way to Vietnam.[xxiii]

The consistent use of the same trafficking methods across different European eel seizures, as well as the sheer size of each trafficking attempt, suggest that European eel trafficking networks are well-organized and relatively professional. Investigations following several recent seizures have supported this indication and exposed the operations of small criminal groups specializing in European eel trafficking. For instance, in April 2018, the Spanish Civil Guard, the Portuguese Food and Economic Security Authority (ASAE), and Europol conducted a joint enforcement operation into one of these groups. During the operation, the officials coordinated the arrest of a group of ten Chinese, Spanish, and Moroccan nationals who had been trafficking European glass eels since at least 2016.[xxiv] The network would fish for eels in northern Spain and then transfer the eels by truck to Algeciras, a Spanish city near the Strait of Gibraltar. The eels were then transported to Morocco where they would be flown to China, Hong Kong, or South Korea. The group also occasionally exported eels through Pato and Lisbon Airports.

Reports indicate that this modus operandi is common amongst eel trafficking groups:

> *"The live eels are largely caught…in Western Europe before being smuggled eastwards in vans or lorries, often falsely labeled as nonendangered fish… Criminal gangs then divide the eels into suitcases, up to 50,000 of the tiny fish per bag, which are then flown by commercial airliner to Asia. The fish are grown in special farms to their full size…and then sold to market."* [xxv]

All of these patterns seem to have continued into 2019. Between January and March of 2019, European officials had already made at least another eight European eel seizures, seven of which had been discovered in checked bags. Several of the seizures exhibited signs of organized, semi-professional trafficking activity.

For example, on February 6, Croatian officials in Zagreb Airport stopped two passengers, Chinese citizen Yeongjin Kim and Korean citizen Myeonghat Shin, with 252,000 European eels in plastic bags filled with water and ice in eight suitcases on their way to Moscow.[xxvi] [xxvii] Airport officials had discovered the hidden eels after X-rays revealed what looked like "big balloons" in the bags, each of which had been lined with thermal padding to keep the eels at a steady temperature.[xxviii] At the time of the seizure, Tihomir Zegrec, the head of Zagreb Airport's Border Customs Office, stated, "[The suspects] arrived in Zagreb a few days ago and their arrival was not unnoticed. They were in Croatia for a couple of days and then with their cargo they headed back to Moscow… The case has some elements of organized crime."[xxix]

Image 6. One of the suitcases containing European eels seized in Zagreb Airport on February 6, 2019. Source: AP

A subsequent investigation revealed that the suspects had already successfully delivered a shipment of European eels to their "employers" on January 24. During their later sentencing hearing, Croatian police explained that Kim and Shin had been hired by a "Mr. Han" (later identified as Chinese national Yongnan Han) to smuggle European eels from Zagreb to Southeast Asia. Han had greeted both suspects on their arrival in Zagreb and paid for both their flights and lodging expenses at two hotels. Han and his associate, Hanwool Jang, fled Croatia after the seizure.

Another 2019 seizure suggested that some European eel traffickers may have prior experience transporting fish. On January 28, customs officials in Stuttgart Airport stopped two men on their way to Asia with 170,000 European eels packed in 48 bags within four separate suitcases.[xxx] Officials noted that the traffickers had added pure oxygen to each bag to increase the chances the eels would survive the journey. The Fisheries Commission "estimate[d] that a specialist in fish transport [was involved], because this is exactly how fish in commercial fisheries are transported."[xxxi]

The January 28 seizure was particularly notable because it was reportedly the first seizure of European eels in Stuttgart Airport. Reports of the seizure noted that although customs officials in Stuttgart had not dealt with European eel trafficking before, they were familiar with the "characteristics of eel smuggling" because eel seizures have become common in other European cities such as Frankfurt and Zurich.[xxxii] A German official quoted at the time of the seizure suggested that higher seizure rates in Western Europe were pushing eel trafficking attempts further east towards Eastern Europe, "where eel smuggling is so far not that well-known and the detection rate is still relatively low."[xxxiii]

These seizures and associated arrests suggest that European eel trafficking is increasing, and tends to involve experienced, small-scale trafficking networks using European and North African airports to move eels to demand markets. As awareness of European eel trafficking continues to increase in European and North African airports, officials can expect to see a shift towards airports that are smaller or farther afield as traffickers attempt to bypass heightened scrutiny on high-risk flight routes.

Endnotes

i Nkala, Oscar. "Vietnamese man attempts to smuggle 12 rhino horns through Ugandan airport." LinkedIn. 21 Aug. 2017. https://www.linkedin.com/pulse/vietnamese-man-attempts-smuggle-12-rhino-horns- through-oscar-nkala/

ii Penny, Tara. "RHINO HORNS WORTH R23M SEIZED AT OR TAMBO AIRPORT." Eyewitness News. 10 Jan. 2019. https://ewn.co.za/2019/01/10/r23m-worth-of-rhino-horns-seized-at-or-tambo-international-airport/.

iii Ibid.

iv "Authorities seize half ton of ivory amid smuggling worries." Pulse.ng. 7 Dec. 2016. https://www.pulse.ng/news/world/south-sudan-authorities-seize-half-ton-of-ivory-amid-smuggling-worries/dxl3evc/.

v "Detection Dogs: A History of Reliability and Versatility." Sniff K9s. 20 Sep. 2012. https://sniffk9s.com/detection-dogs-a-history-of-reliability-and-versatility/.

vi "Frankfurt's Wildlife Sniffer Dogs Draw Interest from European Airports." DW. 8 Sep. 2011. https://www.dw.com/en/frankfurts-wildlife-sniffer-dogs-draw-interest-from-european-airports/a-15359372/.

vii Although it is unclear when exactly the Kenya Wildlife Service began relying on sniffer dogs, publicly reported seizures resulting from sniffer dog identifications in Jomo Kenyatta Airport seem to have begun in 2009.

viii Yee, Amy. "How These Dogs Protect Elephants." 27 Apr. 2016. National Geographic. https://www.nationalgeographic.com/news/2016/04/160427-kenya-wildlife-service-sniffer-dogs-smuggled-ivory-airport-port-elephant-poaching/.

ix Martell, Peter. "Kenya's Canine Cops Sniff Out Illegal Ivory." AFP. 3 Mar. 2016. https://www.yahoo.com/news/kenyas-canine-cops-sniff-illegal-ivory-052408374.html/.

x "Traffic Bulletin Seizures and Prosecutions." Traffic. Apr. 2019. https://www.traffic.org/site/assets/files/9287/traffic_bulletin_march_1997_-_april_2019-1.pdf/.

xi "Kenya's canine cops sniff out ivory." News24. 3 March 2016. www.news24.com/Africa/News/kenyas-canine-cops-sniff-out-ivory-20160303.

xii "Dog Unit for Wildlife Protection Launched" The Namibian. 17 Sep. 2018. https://www.namibian.com.na/181424/archive-read/Dog-unit-for-wildlife-protection-launched/.

xiii "Wildlife Detection Dog Department Launched at Malawi's Major International Airport KIA." The Nyasa Times. 9 Aug. 2018. https://www.nyasatimes.com/wildlife-detection-dog-department-launched-at-malawis-major-international-airport-kia/.

xiv "Calling in the Dogs to Disrupt Wildlife Trafficking in Mozambique." The Club of Mozambique. 29 Nov. 2018. https://clubofmozambique.com/news/calling-in-the-dogs-to-disrupt-wildlife-trafficking-in-mozambique/.

xv Jaramogi, Patrick. "Uganda, Kenya Earmark Strategies to Combat Ivory Smuggling as Entebbe and Mombasa Top Exit Routes." The Investigator. 20 Nov. 2018. https://theinvestigatornews.com/2018/11/uganda-kenya-earmark-strategies-to-combat-ivory-smuggling-as-entebbe-and-mombasa-top-global-exit-routes/.

xvi Then the one that's missing (xvi): "Frankfurt's wildlife sniffer dogs draw interest from European airports." DW. 8 Sep 2011 https://www.dw.com/en/frankfurts-wildlife-sniffer-dogs-draw-interest-from-european-airports/a-15359372

xvii An estimate of 3,000 eels per kg was used for seizures that were reported only by weight. Source: Bryce, Emma. "Illegal eel: black market continues to taint Europe's eel fishery." The Guardian. 9 Feb. 2016. www.theguardian.com/environment/world-on-a-plate/2016/feb/09/illegal-eel-black-market-continues-to-taint-europes-eel-fishery.

xviii Spanish Civil Guard. "Interceptados más de trescientos kilos de angulas en el Aeropuerto de Madrid-Barajas" Government of Spain. 10 Feb. 2018. www.guardiacivil.es/es/prensa/noticias/6495_s.html.

xix "Interceptados más de 100 kilos de angulas en el aeropuerto de Barajas que tenían como destino Hong Kong." Europa Press Madrid. 22 April 2018. www.europapress.es/madrid/noticia-interceptados-mas-100-kilos-angulas-aeropuerto-barajas-tenian-destino-hong-kong-20180422101744.html.

xx Roughly 951,000 eels.

xxi "Aéroport de Lisbonne : saisie de 317 kilos de civelles braconnées." Agence Marocaine de Presse Ecology. 19 Jan. 2018. http://mapecology.ma/actualites/aeroport-de-lisbonne-saisie-de-317-kilos-de-civelles-braconnees/.

xxii About 150,000 eels.

xxiii "Police seize 50 kilos of baby eels at Faro Airport." Portugal Resident. 28 Feb. 2018. http://portugalresident.com/police-seize-50-kilos-of-baby-eels-at-faro-airport.

xxiv Robin des Bois. "On the Trail #21: Events from the 1st April to the 30th of June 2018." www.robindesbois.org/wp-content/uploads/ON_THE_TRAIL_21.pdf.

xxv AFP-JIJI. "Eel trafficking in EU called the 'largest wildlife crime on Earth.'" The Japan Times. 21 Nov. 2018. www.japantimes.co.jp/news/2018/11/21/world/crime-legal-world/eel-trafficking-eu-called-largest-wildlife-crime-earth/.

xxvi Petrusic, Zeljko. "ŠVERCERI ZAŠTIĆENIH JEGULJA OSUĐENI NA UVJETNU KAZNU ZATVORA Optužnica protiv 'gospodina Hana' vraćena USKOK-u na doradu." JutarnjiVijesti. 30 May 2019. www.jutarnji.hr/vijesti/crna-kronika/sverceri-zasticenih-jegulja-osudeni-na-uvjetnu-kaznu-zatvora-optuznica-protiv-gospodina-hana-vracena-uskok-u-na-doradu/8947316/.

xxvii Zabec, Kresimir and Matija Boltizar. "VIDEO, FOTO: CIJELI SVIJET BRUJI O ZAPLJENI VIŠE OD 250.000 ZAŠTIĆENIH JEGULJA U ZAGREBU Jutarnji prvi donosi video 'plijena' skrivenog u 8 kofera." JutarnjiVijesti. 8 Feb. 2019. www.jutarnji.hr/vijesti/crna-kronika/video-foto-cijeli-svijet-bruji-o-zapljeni-vise-od-250000-zasticenih-jegulja-u-zagrebu-jutarnji-prvi-donosi-video-plijena-skrivenog-u-8-kofera/8356706/.

xxviii Ibid.

xxix Ibid.

xxx "Nach Aal-Fund am Stuttgarter Flughafen: Zoll entdeckt erneut Kuriosität." Heidelberg 24. 7 March 2019. www.heidelberg24.de/welt/flughafen-stuttgart-karlsruhe-zoll-macht-krassen-fund-jetzt-ganzes-ausmass-klar-zr-11610812.html.

xxxi Ibid.

xxxii Ibid.

xxxiii Ibid.

CONCLUSION & RECOMMENDATIONS

In *Runway to Extinction*, C4ADS finds the illegal wildlife trade to be truly global in scope, encompassing more and more locations as each year goes by. Traffickers operating in each of the world regions covered by this report – Africa, the Americas, Asia, Europe, the Middle East, and Oceania – relied repeatedly on the same or similar trafficking methods and flight routes, often exploiting the same vulnerabilities within the air transport sector as traffickers of other illicit goods. The greatest variation in wildlife trafficking occurred not necessarily between regions, but between the species or wildlife product trafficked; the specific methods used and routes taken by wildlife traffickers were heavily dependent on wildlife type (e.g. Guyanese finches are always smuggled in hair curlers from Guyana to New York; pig-nosed turtles are generally smuggled in huge quantities, declared as a marine species, and flown from a regional Indonesian airport to Jakarta before flying to China).

Although wildlife trafficking bleeds into countries on every continent other than Antarctica, China's role in the illegal wildlife trade (likely driven by high demand for wildlife, but also by fairly effective enforcement, good reporting standards, and sheer population size) completely eclipsed the involvement of any other country, and seemed to be increasing. Relatedly, wildlife product processing seems to be moving closer and closer to source regions to reduce the chances of discovery in transit, suggesting that seizures of smaller quantities of processed ivory, rhino horn, and marine species will increase in the future. Finally, wildlife trafficking can be roughly divided into two groups: wildlife product trafficking (ivory, rhino horn, pangolins and pangolin products), which generally flows from Africa to Asia in a broad supply chain that narrows substantially as it approaches its end; and live animal trafficking (reptiles, birds, marine species, and mammals), which is widely dispersed throughout the world, without a clearly definable supply chain.

As in *Flying Under the Radar* and *In Plane Sight*, *Runway to Extinction* provides broadly applicable recommendations[1] that, if implemented correctly, could help to reduce wildlife trafficking throughout the air transport system as a whole. Most of last year's recommendations are still applicable this year, and primarily involve awareness, training, enforcement procedures, seizure reporting, and prevention efforts. The recommendations are grouped below by topic, and are meant to be applicable to enforcement, industry, intergovernmental organizations, and nongovernmental organizations. For more specific recommendations regarding a certain species or region, please contact C4ADS or the broader ROUTES Partnership.

1 More specific recommendations would require knowledge of each country's current seizure reporting protocols and awareness raising activities, and so were outside the scope of this analysis.

For agencies and organizations interested in taking a more proactive approach to combatting wildlife trafficking, we have included examples, possible paths forward, and organizations to contact wherever possible in Appendix III. The implementation of many of the recommendations can also be supported by the resources developed under the ROUTES Partnership and work being undertaken by other groups on wildlife trafficking (e.g. United for Wildlife and the US Wildlife Trafficking Alliance).

Each recommendation is marked with the following symbols to illustrate its intended audience:

CUSTOMS AND ENFORCEMENT AGENCIES

PRIVATE SECTOR

INTER-GOVERNMENTAL ORGANIZATIONS

NON-GOVERNMENTAL ORGANIZATIONS

Regardless of each recommendation's intended audience, note that communication and collaboration are needed, at a minimum, between enforcement and industry to ensure that wildlife trafficking through the air transport sector is addressed comprehensively and strategically. In addition, many of the trafficking methods identified in both *Flying Under the Radar* and *In Plane Sight* are utilized by traffickers of all types. As a result, implementation of the following recommendations will likely improve enforcement success not just for the illegal wildlife trade, but for other crime types as well.

C4ADS recommends the following steps be taken to improve enforcement success rates and reduce wildlife trafficking by air.

RECOMMENDATIONS

AWARENESS

1. Increase awareness among air passengers, aviation staff, freight forwarders, shippers, and enforcement officials.
2. Adopt or create a pamphlet or tool tailored to each country to help customs and enforcement officials, as well as relevant industry personnel, identify restricted species and wildlife products commonly trafficked through their territory.
3. Ensure public reporting mechanisms are in place and well-known so passengers can report suspected wildlife trafficking instances.

TRAINING

4. Provide training on red flag indicators associated with wildlife traffickers and shipments. Ensure that follow-up trainings are provided as necessary to support uptake.
5. Incorporate training for airline staff on how to safely handle trafficked live or dead animals after discovery into existing training programs. Create and provide "forensic protection protocols" training to preserve evidence for trial.

ENFORCEMENT

6. Develop clear escalation procedures upon discovery of potential illegal activity.
7. Engage with the private sector to ensure that aviation personnel are aware of the types of information needed to follow up on reports of wildlife trafficking. Provide feedback to industry and the public on the outcomes of submitted tips.
8. Develop post-seizure procedures to safely and securely store wildlife products or ensure the proper care of trafficked live animals. Develop procedures to track seized live animals and wildlife products.
9. Dedicate additional resources to combatting the illegal wildlife trade in common hub airports exploited by wildlife traffickers.
10. Develop or enhance customs screening procedures for transit flights.
11. Customs and enforcement should be aware of flight routes opening through high-risk areas.
12. Develop and maintain a comprehensive internal database of entities previously involved in wildlife seizures.
13. Develop a system to test counter-wildlife trafficking protocols.
14. Improve wildlife customs screening requirements for postal mail shipments. Ensure mail seizures are reported to the same degree as passenger, checked luggage, or air freight seizures.
15. Increase cooperation with other customs and enforcement agencies along high-risk supply chains. Inform foreign agencies of seizures on flights that have left or are destined for their countries.

RECOMMENDATIONS

SEIZURE REPORTING

16. Store collected seizure information in one centralized database.

17. Develop a procedure to publicly report seizure information. Update seizure press releases with prosecution results.

POLICY

18. National laws should, at a minimum, enforce CITES regulations and regulate the domestic trade in non-native species. Penalties for wildlife trafficking should be raised until they are sufficiently deterrent.

DETECTION

19. Pursue shift towards electronic paperwork for air freight and updated technology for customs screening. Expand advanced cargo and passenger information systems to include red flags for the illegal wildlife trade. Incorporate CITES e-permits in e-documentation systems.