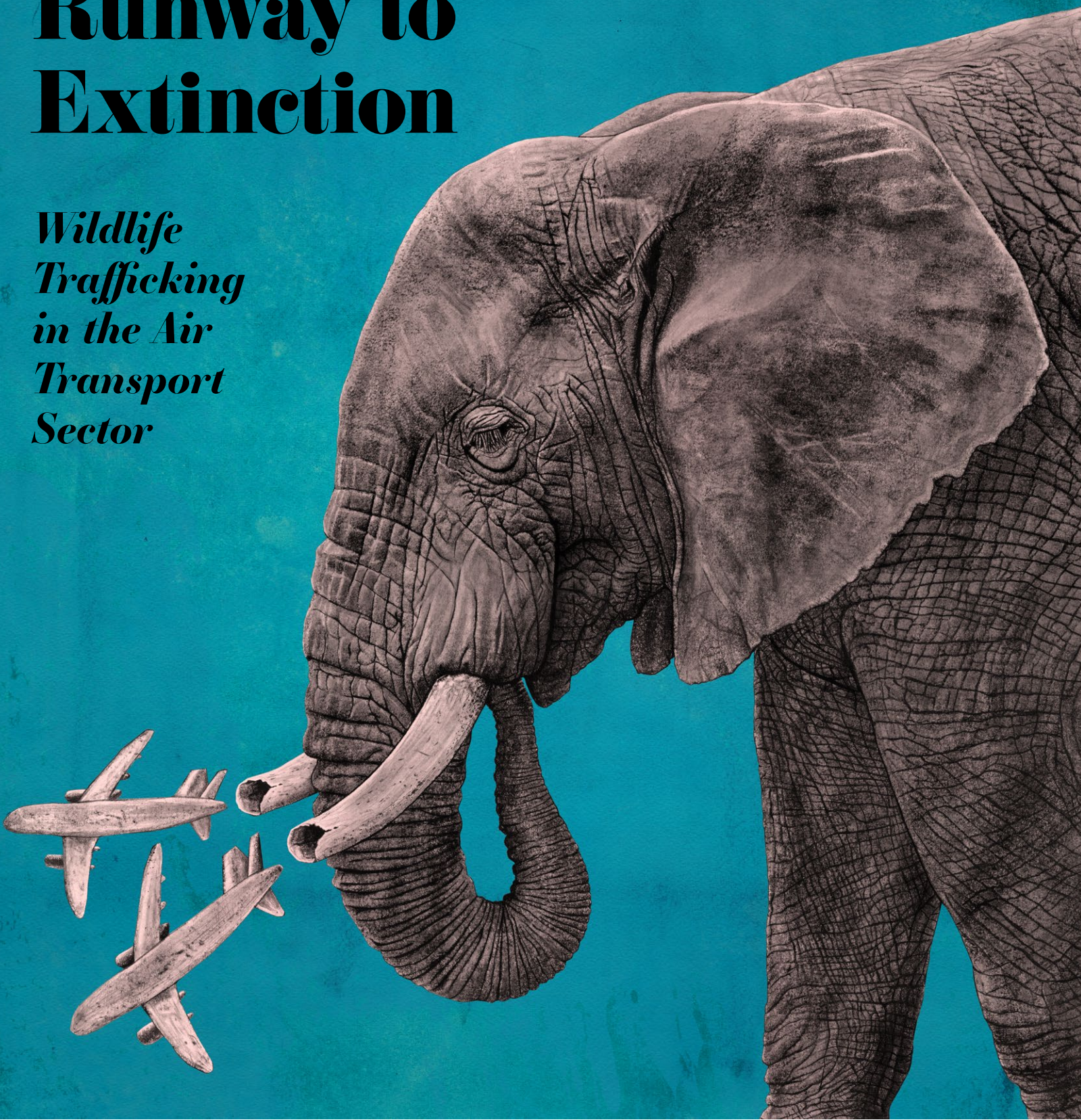


Runway to Extinction

Wildlife Trafficking in the Air Transport Sector



USAID
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C4ADS
innovation for peace



TRAFFIC
the wildlife trade monitoring network



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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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.

ASIA

MAIN TAKEAWAYS

Asia is by far the world's largest demand region for trafficked wildlife and wildlife products.

Asian trafficking routes extend to every region, sourcing live animals and wildlife products from all over the world.

China dominated every seizure and trafficking instance count in the analysis, likely due to extremely high demand for trafficked wildlife driven by a large population, effective enforcement, and good reporting.

Trafficking of Asian species has declined as their population numbers have fallen, and Asian trafficking networks appear to increasingly rely on species found mostly in Africa to satiate demand.

Although Asian species are in decline, sufficient numbers remain to support significant intra-Asian trade in reptiles, birds, pangolins, and marine species. Ivory, rhino horn, and mammal products are also trafficked intra-regionally, perhaps supported by wildlife demand markets throughout East and Southeast Asia that import from other world regions and trade amongst themselves.

Reptile trafficking in Central and Southeast Asia, however, is still widespread.

FIGURE 1

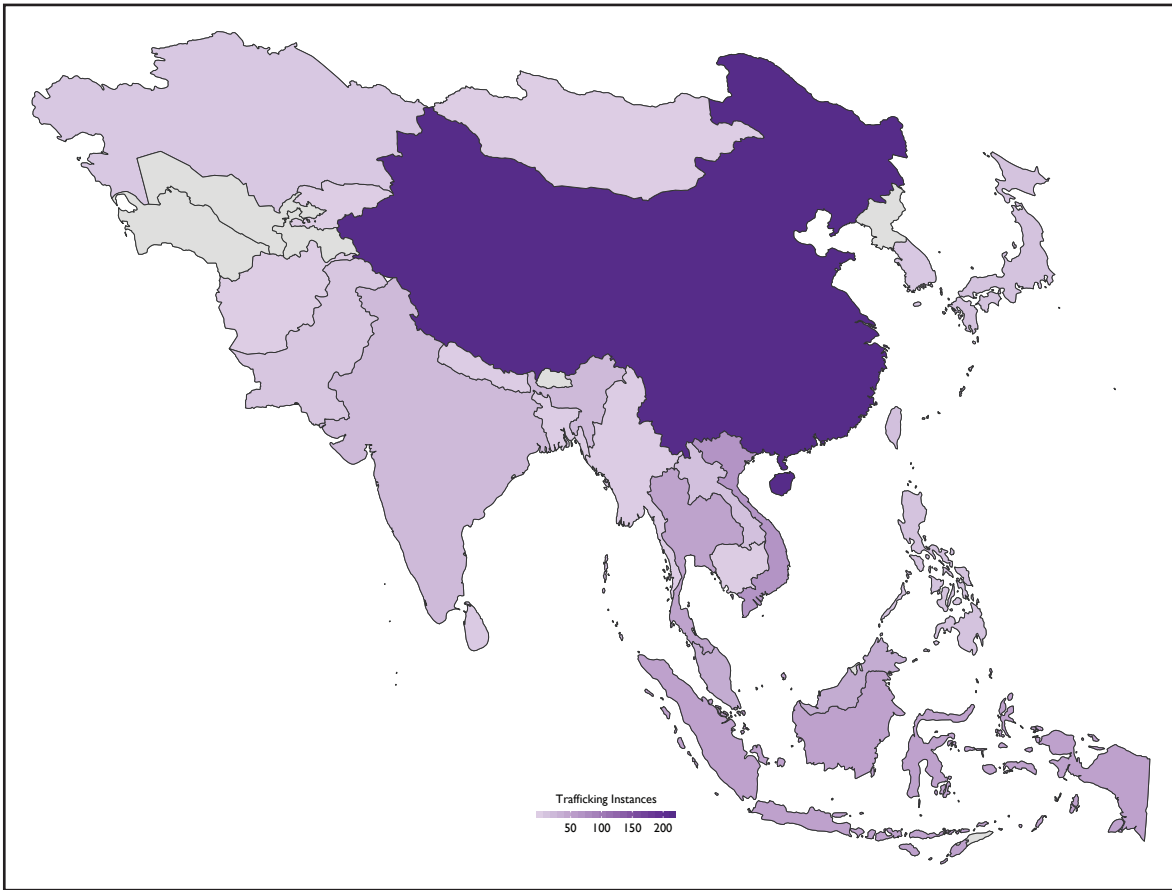


Figure 1. Heat map of wildlife and wildlife product trafficking instances in Asia’s air transport sector (2016 – 2018)

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.

The Asian heat map is remarkable in the number of Asian countries counting wildlife trafficking instances in their airports in just a three-year period. It appears that only six Asian countries – North Korea, Timor-Leste, Bhutan, Uzbekistan, Turkmenistan, and Tajikistan – did not have a publicized wildlife trafficking attempt pass through their airports between 2016 and 2018.

China is dominant

China was far and away the leading country in Asia by trafficking instance count, according to the C4ADS Air Seizure Database. Between 2016 and 2018, China was linked to over 150 wildlife trafficking instances moving through the air transport sector. In comparison, other prominent countries in the Asian heat map counted around 50 trafficking instances each within the same timeframe.

FIGURE 2

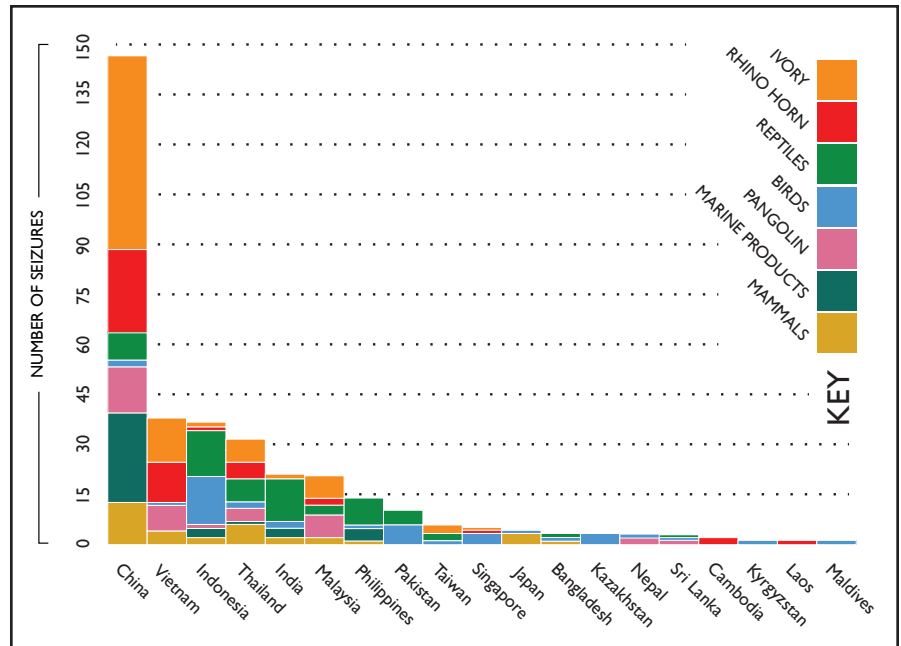


Figure 2. Total seizure count by Asian country (2016 – 2018)

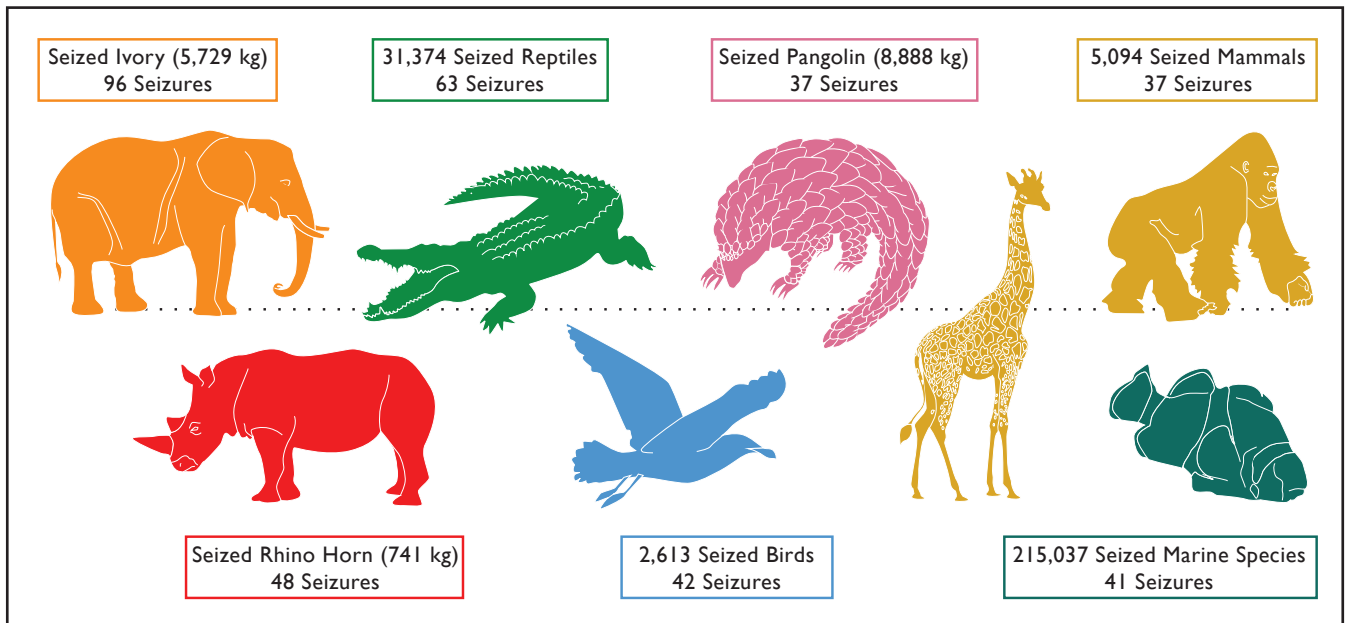


Figure 3. Number of seizures in Asia of each type of wildlife or wildlife product (2016 – 2018)

As in the heat map, China stands out in Figure 2 as the Asian country with the highest seizure count by far, according to the C4ADS Air Seizure Database, with about four times as many seizures as Vietnam, the country with the second-highest seizure count.

China’s high seizure count

Between 2016 and 2018, Chinese authorities made at least 156 wildlife seizures in airports around the country. China’s high seizure count was likely driven by a number of different factors.

First, Chinese cultural traditions that rely on exotic animals and wildlife products for consumption, decoration, and the pet trade, paired with a growing middle class and a huge population size, mean that demand for wildlife in China is greater than in any other country in the world.

Second, awareness of wildlife trafficking is relatively high in China, and Chinese enforcement tends to be effective. As a result, enforcement authorities in Chinese airports are well-positioned to stop wildlife trafficking instances.

Third, Chinese customs agencies are particularly good at publicly reporting wildlife seizures. Even the smallest ivory, coral, or clam seizures are often reported through the agency’s Weibo account, along with a photo.

These four factors – substantial demand, high awareness, effective enforcement, and good reporting – all contribute to China’s extremely high seizure count.

Marine species and mammals in China

According to the C4ADS Air Seizure Database, China made more ivory, rhino horn, pangolin, marine species, and mammal seizures than any other country in Asia between 2016 and 2018. Although Chinese demand for ivory, rhino horn, and pangolin is well-known, Chinese demand for marine species and mammals has received less attention.

“Substantial demand within China for wildlife, effective enforcement, good reporting, and high awareness of wildlife trafficking amongst Chinese officials all contribute to China’s high seizure count.”

Marine species seizures in China generally involved shark fins, European eels, seahorses, sea cucumbers, totoaba swim bladders, clams, or coral discovered in Hong Kong Airport (see **Demand for Marine Species in Hong Kong**).

These smuggling attempts originated from all over the world, including Spain, Mexico, Egypt, Peru, the Philippines, and Papua New Guinea.

Mammal seizures made in China were less numerous but similarly diverse, involving products such as antelope horns, deer antler velvet, tiger skins, black bear paws, and seal genitalia from the Americas, Africa, and Asia. Most of these products were likely intended for sale to traditional medicine vendors. Rather than concentrating in one airport, however, mammal seizures occurred throughout China, in Dalian, Qingdao, Xiamen, Guangzhou, Tianjin, and other cities.

DEMAND FOR MARINE SPECIES IN HONG KONG

Growing consumer demand in China for wildlife products is fueling the trade of marine species for use in cuisine and traditional medicines.ⁱ Hong Kong in particular is well-known as a major retail and distribution hub for high-end luxury seafood products.ⁱⁱ Legal seafood markets in upscale neighborhoods in the city, such as Sheung Wan, are hotspots for the sale of protected marine species, including totoaba fish bladders, dried shark fins, sea cucumbers, and abalone.ⁱⁱⁱ

Between 2016 and 2018, C4ADS documented thirteen seizures of marine species destined for Hong Kong in air transport. These trafficking instances originated in countries such as Mexico, Spain, Sri Lanka, South Africa, the US, and Portugal. Six of the reported seizures contained European eels sourced from Portugal or Spain and hidden in checked luggage or air freight. Seizures of European eels have risen markedly over the last few years (see **European Eel Trafficking**) and Hong Kong is likely both a destination and a transit point for eels en route to buyers in mainland China and Japan.^{iv}

Hiding protected marine species within other legal products and misreporting the smuggled animals or products as a different species on shipment documentation are both common methods used by marine species traffickers. Out of the thirteen marine species trafficking instances destined for Hong Kong between 2016 and 2018, at least six were falsely declared or hidden with other marine products.

For example, in May of 2018, a shipment of 989 kilograms of dried shark fins was seized by Hong Kong Customs. The shipment arrived in Hong Kong from Sri



Image 1. Bags of shark fins seized by Hong Kong Customs after arriving from Sri Lanka via Singapore. The bags were declared as “dried seafood.” Source: Reuters/Sea Shepherd Global

Lanka via Singapore on Singapore Airlines, and included fins from endangered shark species (such as whale sharks, which are listed on CITES Appendix II) mixed with legal fins. Perhaps because Singapore Airlines¹ banned the shipment of shark fins on their planes in 2014, the shipment was declared as “dried seafood” to “avoid the airline’s internal booking checks.”^v The seizure prompted Singapore Airlines to blacklist the shipper, Win Lee Fung Ltd.,^{vi} and remind employees “to conduct sampling checks on shipments made under the label ‘dried seafood’ to ensure they [do] not contain shark fin.”^{vii}

Although Hong Kong appears to be the most prominent city for marine species trafficking in Asia according to the C4ADS Air Seizure Database, at least six other Chinese cities made at least 20 more marine species seizures in their airports within the same time frame. Continued high levels of demand for marine species in Hong Kong and China poses a significant risk to populations of European eels, totoaba, seahorses, sea cucumbers, and abalone in Europe, the Americas, and Africa.

Bird seizures in Central Asia

At least three Central Asian countries – Pakistan, Kazakhstan, and Kyrgyzstan – made bird seizures between 2016 and 2018. Almost all of the Central Asian bird seizures involved falcons, usually saker or peregrine falcons, being smuggled between Central Asia and the Middle East as part of the illegal falconry trade. Most involved birds poached from their habitats and intended for sale to wealthy Middle Easterners. Other seizures that did not fit this pattern generally involved falcons being flown to and from hunting grounds in Central Asia and the Middle East (see **Falcon Smuggling & Corruption**).

Prevalence of pangolin seizures

Asian countries seized more pangolin scales by weight (8,888 kg) than any other wildlife product, including ivory (5,729 kg). This is relatively unsurprising given that pangolin trafficking activity has experienced a marked increase over the past few years, in part driven by increasing demand within Asia for pangolin scales. Over the same timeframe, ivory seizures in the air transport sector have generally become smaller and more numerous as trafficking methods have shifted to compensate for changes in enforcement awareness. Note though that most pangolin shipments are sent by sea, and so the true weight of all pangolin seized

between 2016 and 2018 is far greater than the roughly 9,000 kg discovered in airports and captured in the C4ADS Air Seizure Database.

Low seizure numbers in certain countries

A few of the countries visible in Figure 2 are well known for their involvement in wildlife trafficking, but counted relatively low seizure numbers between 2016 and 2018. Lao PDR (Laos), for instance, is notorious for its role in the illegal wildlife trade, and is home to the Golden Triangle and a number of well known wildlife traffickers. In another example, Japan, although not as notorious as Laos, is believed to have a larger market for certain animals and wildlife products (e.g. slow lorises and ivory) than seizure numbers would suggest. A number of NGOs and news outlets have documented easily exploitable loopholes in Japan’s wildlife regulations (particularly relating to ivory) and how little attention wildlife trafficking receives within Japan.^{2 viii ix}

Low seizure numbers in both countries are likely due to a lack of will on the part of enforcement authorities to enforce wildlife trade regulations and intervene in wildlife trafficking attempts. It is also possible that confusion regarding the difference between legal and illegal shipments of wildlife and wildlife products plays a role in preventing seizures in Laotian and Japanese airports.

¹ A 2017 Sea Shepherd investigation noted that Cathay Pacific and Virgin Australia Cargo had also been targeted by shark fin traffickers. In every trafficking attempt Sea Shepherd identified, the traffickers were sending shipments with vague descriptions such as “dried seafood” or “marine products.” Source: <https://www.seashepherdglobal.org/latest-news/sshk-sharkfin-bust/>

² In July 2019, Japan began requiring that ivory dealers “prove, via carbon dating, that ivory specimens were legally acquired.” Prior to this new regulation, ivory owners did not have to provide verifiable proof of their ivory’s legal origin. NGOs hailed the change as a positive step forward for Japan. Source: <https://wildaid.org/japan-announces-tighter-controls-on-domestic-ivory-market/>

FIGURE 4

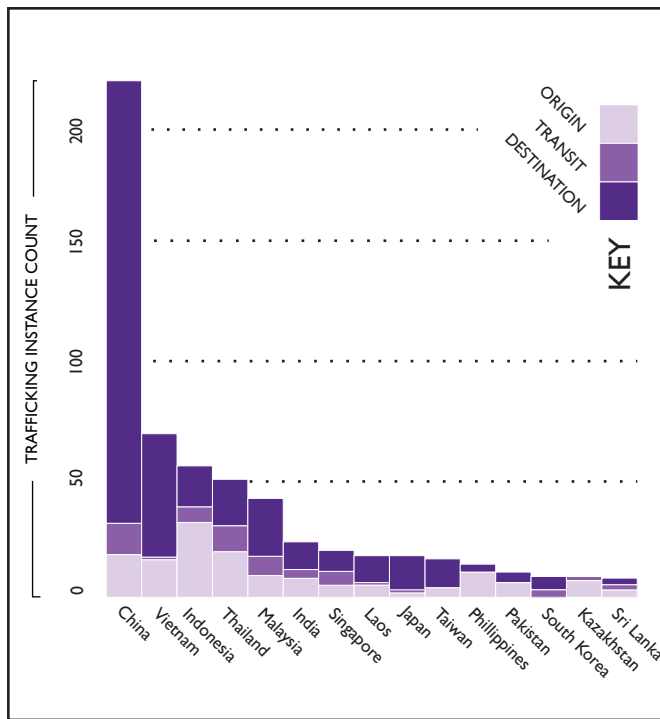


Figure 4. Country-level flight route information for African countries with ten or more trafficking instances (2016 – 2018)

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.

Asian countries were predominantly destination points for wildlife trafficked by air according to the C4ADS Air Seizure Database, although three countries – Indonesia, the Philippines, and Kazakhstan – were mostly origin points for trafficked wildlife between 2016 and 2018.

Asia as a destination region

Only one country in Figure 4, Kazakhstan, was not listed as an intended destination point for any known wildlife trafficking instances between 2016 and 2018. Every other country counted at least one destination trafficking instance, for a total of 376 known destination instances in the region, accounting for 66% of all Asian trafficking instances during that timeframe.

Many countries feature as origin, transit, and destination points

Of the 15 countries visible in Figure 4, ten counted at least one origin, transit, and destination instance each.

India, for instance, was a common origin point for specific reptile species, like Indian star tortoises, that are in demand in the Asian pet trade. It also acted as an occasional transit point for trafficked wildlife, including for a shipment of endangered Malagasy ploughshare tortoises flying from Madagascar to Nepal in March 2016.^x Finally, Chennai, India appears to have a substantial demand market for red-eared slider turtles imported from China and Thailand. Red-eared slider trafficking is so prevalent in the area that each of the four known red-eared slider trafficking instances destined for Chennai between 2016 and 2018 included more than 2,000 animals, with the largest seizure totaling 4,800 turtles in December 2018 (see **Reptile Trafficking in India**).^{xi}

FIGURE 5

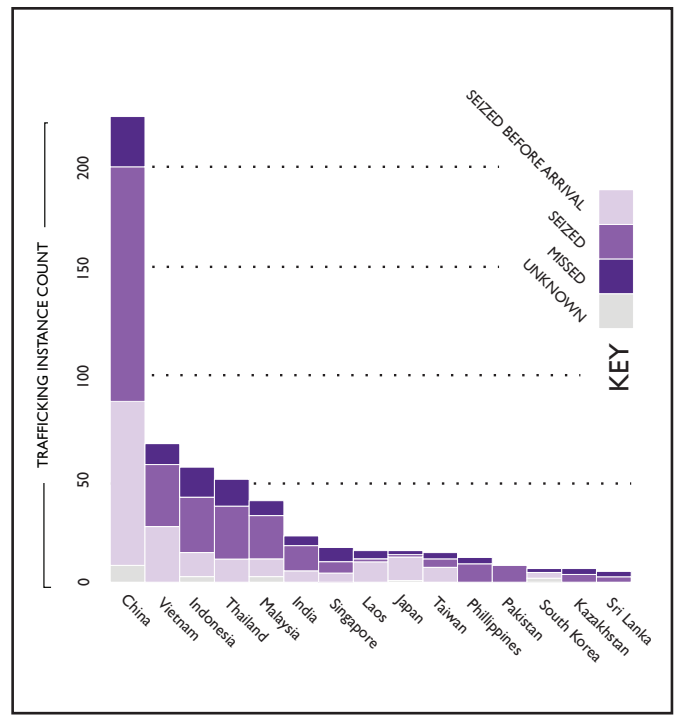


Figure 5. Point of seizure within the supply chain by Asian country (2016 – 2018)

Some countries are primarily origin points

Although the vast majority of Asian countries are usually destination points for trafficked wildlife, at least three Asian countries were more often origin points for wildlife trafficked by air between 2016 and 2018.

Indonesia ranked third in Asia in terms of trafficking instance count, according to the C4ADS Air Seizure Database. Indonesia’s prominence in Figure 4 is primarily driven by two factors: the high number of in-demand species living in the country, and the country’s geography. Indonesia is one of the only remaining countries in the world that is still home to elephants, rhinos, and pangolins, as well as a large number of reptile, bird, mammal, and marine species. But Indonesia is an island nation, and much of the country’s remaining biodiversity is distributed far from the capital city, Jakarta, where the country’s main international airport sits. This means that a fair number of trafficking instances originating in the country flew from smaller airports in Sumbawa or Medan to Jakarta before flying elsewhere (see **Indonesian Pig-Nosed Turtles and Insider Threat**).

The Philippines is also a biodiverse country, and acted as an origin point for a variety of reptile and marine species, including coral, clams, shark fins, monitor lizards, and sailfin lizards, as well as tarsiers, owls, and worked ivory (see **Tarsiers and Insider Threat**). The majority of Philippine trafficking instances flew out of Manila to a wide array of destinations, including Japan, the United States, Sweden, and Taiwan.

Kazakhstan’s trafficking instances generally either involved trafficked falcons or mammal products. For instance, three trafficking attempts involving falcons, mostly saker falcons, were stopped in Kazakhstan on the way to Qatar and the UAE in 2016 and 2017. Kazakhstan’s involvement in mammal trafficking is lesser known, but the country also acted as an origin point for three mammal trafficking instances involving a serval

and wolf, lynx, and zebra skins on the way to China and Germany between 2016 and 2018. While falcons, wolves, and lynx are all native to Kazakhstan, servals and zebras are not, suggesting that wildlife trafficking groups may be operating out of the country and peddling in various native and non-native species and products.

Generally high seizure rates

Few Asian countries missed many wildlife trafficking instances linked to their airports between 2016 and 2018. Rather than serving as evidence of exceptional enforcement throughout the continent, however, this likely reflects Asia's status as a destination region.

Seizure rates in destination countries are subject to a number of biases. First of all, destination countries benefit from effective enforcement in origin and transit countries that help prevent

DIFFICULTY OF MAKING SEIZURES IN TRANSIT

trafficked wildlife from entering their airports in the first place. Second, unlike screening conducted for departing flights, customs screening for arriving flights is designed to find trafficking attempts, meaning wildlife is more likely to be found at destination points than at origin or transit points. Finally, destination countries are at the end of the chain; enforcement authorities at destination airports provide the final check for smuggling attempts within the air transport sector. Once trafficking attempts make it past them, they have successfully exploited the aviation industry and move out of the system. This means that any trafficking attempts that pass through destination airports undetected cannot be counted as "missed" instances for any airports. As a result, seizure rates in destination countries are inflated compared to seizure rates in origin and transit countries, and may inaccurately reflect the number of trafficking attempts that successfully moved through their airports.

SECURITY SCREENING AT ORIGIN VERSUS CUSTOMS SCREENING AT DESTINATION

REPTILE TRAFFICKING IN INDIA

South Asian countries, particularly India, have historically had a significant role in the reptile trade. India's involvement in the illegal reptile trade is so significant that recent reports estimate that around 11,000 turtles and tortoises are trafficked through the country each year.^{xii}

According to the C4ADS Air Seizure Database, India functions as both a source and a destination point for different species of trafficked reptiles. One Indian species in particular, the Indian star tortoise (CITES Appendix I as of 2019), has been in increasingly high demand as an exotic pet in Malaysia and Thailand. Most trafficking instances involving Indian star tortoises left from Chennai, India in checked luggage on the way to Kuala Lumpur, Malaysia or Bangkok, Thailand, and usually involved hundreds of hatchling tortoises. For example, in December of 2017, two individuals were detained with 210 Indian star tortoises in their checked luggage at Chennai Airport.^{xiii} The tortoises were hidden within two plastic boxes and beneath chocolates.^{xiv}

In the past few years, however, Indian star tortoise seizures have decreased markedly. Local news reports suggest this may be because of increased awareness and enforcement activity at common origin airports, which has allegedly forced traffickers to use maritime routes.^{xv} For instance, a shipment of star tortoises was discovered in 2017 after being ferried from Rameswaram, India to Sri Lanka.^{xvi}

As Indian star tortoise trafficking by air has declined, red-eared slider trafficking has appeared to increase. Red-eared slider seizures are often similar to star tortoise seizures; they generally involve many hatchling turtles hidden in checked luggage. But red-eared sliders are smuggled in the opposite direction, moving from Thailand, China, and occasionally Malaysia to Chennai (every red-eared slider seizure in the C4ADS Air Seizure Database was discovered in or en route to Chennai Airport). Red-eared slider seizures also generally involve significantly more turtles, usually ranging between 2,000 and 9,000 individuals.

In one seizure on December 20, 2018, two passengers were

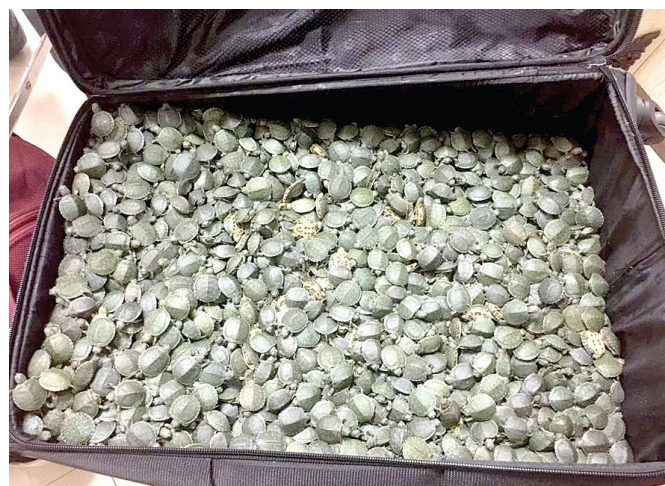


Image 2. On August 27, 2016, customs officials in Chennai Airport found 4,000 red-eared slider turtles in the luggage of a passenger arriving from Malaysia. Each of the turtles was roughly one inch in length. Source: New Indian Express

stopped by customs officials on arrival at Chennai Airport due to suspicious behavior.^{xvii} The officials discovered a total of 4,800 red-eared sliders stashed in cartons in their checked luggage. The suspects had arrived on a Thai Air flight from Bangkok. In a similar seizure in October of 2018, an individual arriving on a Thai Air flight from Ghaonzhu, China via Bangkok was stopped by customs officials due to reportedly suspicious behavior. Upon further inspection, officials found 2,300 turtles stored in cartons in his checked luggage.^{xviii}

The scale of these seizures, as well as the apparent increase in red-eared slider trafficking activity, lend credence to South Asia's reputation as the global epicenter of turtle and tortoise trafficking. Though smuggling of endangered Indian star tortoises may appear to be decreasing, the apparent decline in star tortoise seizures may actually be an indication that effective enforcement in airports has forced traffickers to rely on alternate routes. Still, seizure data indicates red-eared slider trafficking shows no signs of abating, and continues to pass through South Asian airports relatively frequently.

ABANDONED BAGS IN MUMBAI

Traffickers of wildlife and other contraband will occasionally go to great lengths to distance themselves from the illegal goods hidden in their bags.

For example, in March 2016, authorities in Mumbai Airport noticed an abandoned bag had developed a strange smell after sitting unclaimed for a week.^{xix} Upon further inspection, officials discovered 146 critically endangered tortoises (139 radiated tortoises and six ploughshare tortoises, both CITES Appendix I) from Madagascar inside. The tortoises had been wrapped in plastic bags and taped, presumably to prevent them from moving. Two of the radiated tortoises had died after their shells were broken. The passenger associated with the bag had traveled onto Kathmandu, Nepal leaving the bag behind.

Ploughshare tortoises are particularly rare, with only 500^{xx} or so left in Madagascar, meaning the six found in Mumbai could have represented as much as 6% of the remaining wild population.



Image 3. Some of the tortoises found wrapped in plastic and taped in Mumbai. Source: Kiran Kumar Karlapu



Image 4. Plastic containers used to smuggle 12 CITES-protected Chinese hwamei birds. Source: Singapore AVA

INDONESIAN PIG-NOSED TURTLES & INSIDER THREAT

Indonesia is a common origin point for trafficked wildlife, especially reptile species like pig-nosed turtles and green tree pythons, both of which are in demand as pets. But Indonesia's role as an origin point may be due to more than just the country's biodiversity; a number of pig-nosed turtle seizures in early 2016 seemed to be linked to a wildlife trafficking network operating with the support of certain airport officials.

In February, officials at Mozes Kilangin Airport in Timika in Papua, Indonesia discovered 3,230 endangered pig-nosed turtles (CITES Appendix II) packed in 190 plastic boxes and hidden in four suitcases.^{xxi} The turtles were set to fly to Jayapura, Indonesia on Sriwijaya Air before heading on to Jakarta. Reports of the seizure explained that the traffickers behind the seizure had intentionally moved the suitcases through the entrance of the old airport, which had no X-ray machines.

A week later, officials in Jakarta's Soekarno-Hatta Airport found 3,737 pig-nosed turtles and 883 snake-necked turtles in 38 boxes destined for Hong Kong.^{xxii} The seizure occurred after Indonesian officials noticed that boxes containing 15,200 clown loach fish that had already been cleared by customs authorities appeared different than they had before. Closer inspection revealed the turtles. At least three individuals were arrested in connection with the seizure.

About a month later, security officers in Mozes Kilangin Airport discovered another shipment of pig-nosed turtles, this time of 1,220 turtles, packed



Image 5. One of the pig-nosed turtles seized in Jakarta in late February 2016. Source: Nufus Nita Hidayati

in two cardboard boxes after the boxes passed through an X-ray machine.^{xxiii} As in the first seizure, these turtles were supposed to fly to Jakarta on a Sriwijaya Air flight. According to an official, "A person, with the initial 'S', carried [the boxes] to Timika Airport terminal." Seizure reports described "S" as a ground handler for Sriwijaya Air at Mozes Kilangin Airport.

These three seizures were not unique; a series of similar seizures also took place in 2014 and 2015. The earlier seizures also involved thousands of pig-nosed turtles shipped from smaller Indonesian airports to Jakarta before flying internationally.^{xxiv} These shipments were also falsely declared as "live tropical fish" or similar species, like mangrove crabs. Taken together, these seizures likely represent the operations of a coordinated network or networks of traffickers shipping pig-nosed turtles to East Asian destinations year after year. Note, however, that the C4ADS Air Seizure Database does not document any seizures following the same pattern after the March 2016 seizure when a trafficker working as a ground handler was arrested.

TARSIERS & INSIDERS THREATS

A seizure in the Philippines in 2016 highlighted how airport authorities can exploit their positions to smuggle illegal wildlife and other contraband.

On January 28, 2016, officials at Manila’s Ninoy Aquino Airport intercepted a shipment of 47 rare animals, including 11 tarsiers, 11 snakes, 11 monitor lizards, and eight sailfin lizards, as well as eagle owls and scops owls.^{xxv} The animals had been packed in Styrofoam boxes and labelled as aquatic plants. They were destined for Japan.

After the seizure, officials explained that they had received a tip in January 2015 about wildlife trafficking at the airport. During subsequent surveillance, they observed an airport police officer “going back and forth to the airport,” transporting items for shipping.^{xxvi} He had already used his position to send multiple shipments of Philippine wildlife to a partner in Japan.^{xxvii}

Chinese President Xi Jinping agreed in 2015 to ban ivory sales in China beginning on January 1, 2018, while Hong Kong’s legislature only voted to ban ivory sales in January 2018.^{xxviii} As a result, ivory sales in Hong Kong will continue until 2021.^{xxix} Similarly, a number of undercover NGO investigations into totoaba trafficking in Hong Kong in 2015 determined that Hong Kong customs was considered “free entry” by traffickers, while mainland Chinese authorities were considered much more strict.^{xxx} Some totoaba traders also explained that mainland Chinese preferred to buy totoaba in Hong Kong rather than mainland China due to a perception that Hong Kong product was “higher quality.”^{xxxi} All of this taken together suggests that Hong Kong, in addition to having its own substantial demand for wildlife, may function as a gateway for wildlife traffickers trying to move product into mainland China.

With that said, it is important to note that Hong Kong customs and enforcement agencies are both effective and consistently publicly report seizures, meaning Hong Kong Airport’s high seizure count is likely a result of a combination of high trafficking activity, effective enforcement, and thorough reporting.

Pangolin seizures concentrated in Kuala Lumpur Airport

Officials in Kuala Lumpur Airport made more pangolin seizures than officials in any other airport in Asia between 2016 and 2018. All of the seizures shared a few characteristics; they all involved pangolin scales moved in air freight or mail shipments traveling with falsified documents, including fake destination addresses (see **Pangolins & Malaysia** in *In Plane Sight* for more information). Two were declared “general products and dry herbs” and flew to Malaysia on Kenya Airways and Emirates Airlines. Another two were declared “oyster shells” and relied on Turkish Airlines to travel to Malaysia. A final two were declared “samples” and were transiting through Kuala Lumpur Airport using POS Malaysia on the way to Hong Kong.

While 71% of the Kuala Lumpur seizures in the C4ADS Air Seizure Database contained African pangolin scales originating in Ghana or the DRC, 29% contained scales likely taken from Malaysian Sunda pangolins. It is therefore possible that the concentration of pangolin scale seizures in Kuala Lumpur Airport between 2016 and 2018 was a result of the combined effect of demand for pangolin scales in the country and the existence of native Malaysian pangolin species. It is also possible that, given the similarities between the seizures documented in the airport, one or more pangolin trafficking networks have operated out of Kuala Lumpur.

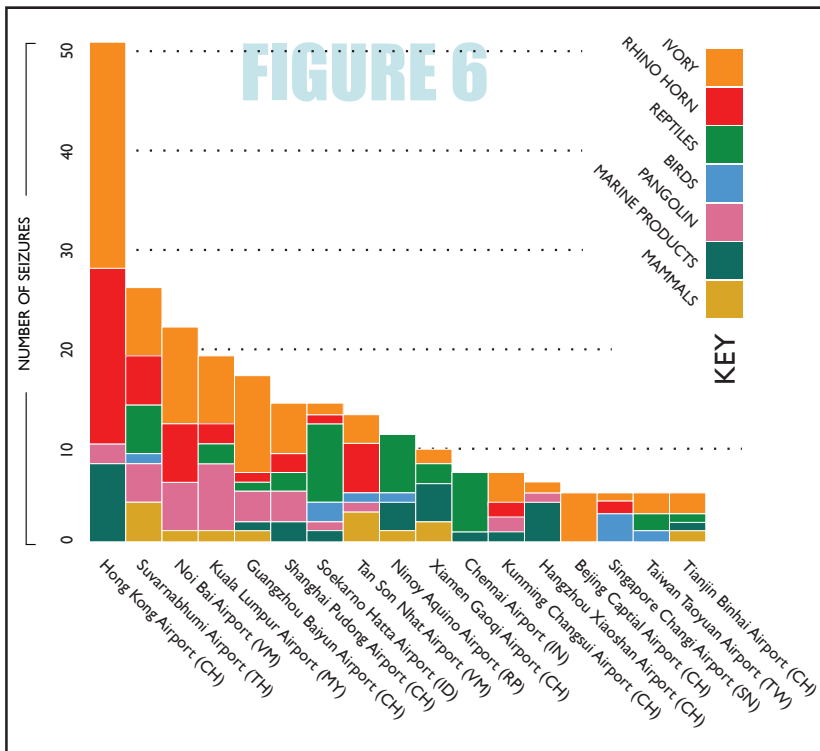


Figure 6. Airport seizure count for Asian airports with five or more seizures (2016 – 2018)

Between 2016 and 2018, authorities in 17 Asian airports made five or more wildlife seizures, according to the C4ADS Air Seizure Database. Of those 17 airports, eight were in China, accounting for about 48% of the seizures visible in Figure 6. The only other country with five or more wildlife seizures in more than one of its airports was Vietnam, which counted 38 seizures (15%) in two airports, Noi Bai and Tan Son Nhat.

Dominance of Hong Kong Airport

Officials in Hong Kong Airport made far more known wildlife seizures between 2016 and 2018 than enforcement authorities in any other airport in the world (see

Demand for Marine Species in Hong Kong). High levels of wildlife trafficking activity in Hong Kong are not just restricted to the city’s airport, however; maritime seizures of wildlife in Hong Kong are also common, and almost always involve greater quantities of wildlife products than can be found in even the largest air freight shipments.

Certain wildlife species and wildlife products are clearly in high demand in Hong Kong. For instance, mainland Chinese citizens have been known to travel to Hong Kong to purchase wildlife products that they cannot buy at home. This is likely at least partially a result of more lax legislation; for example,

FIGURE 7

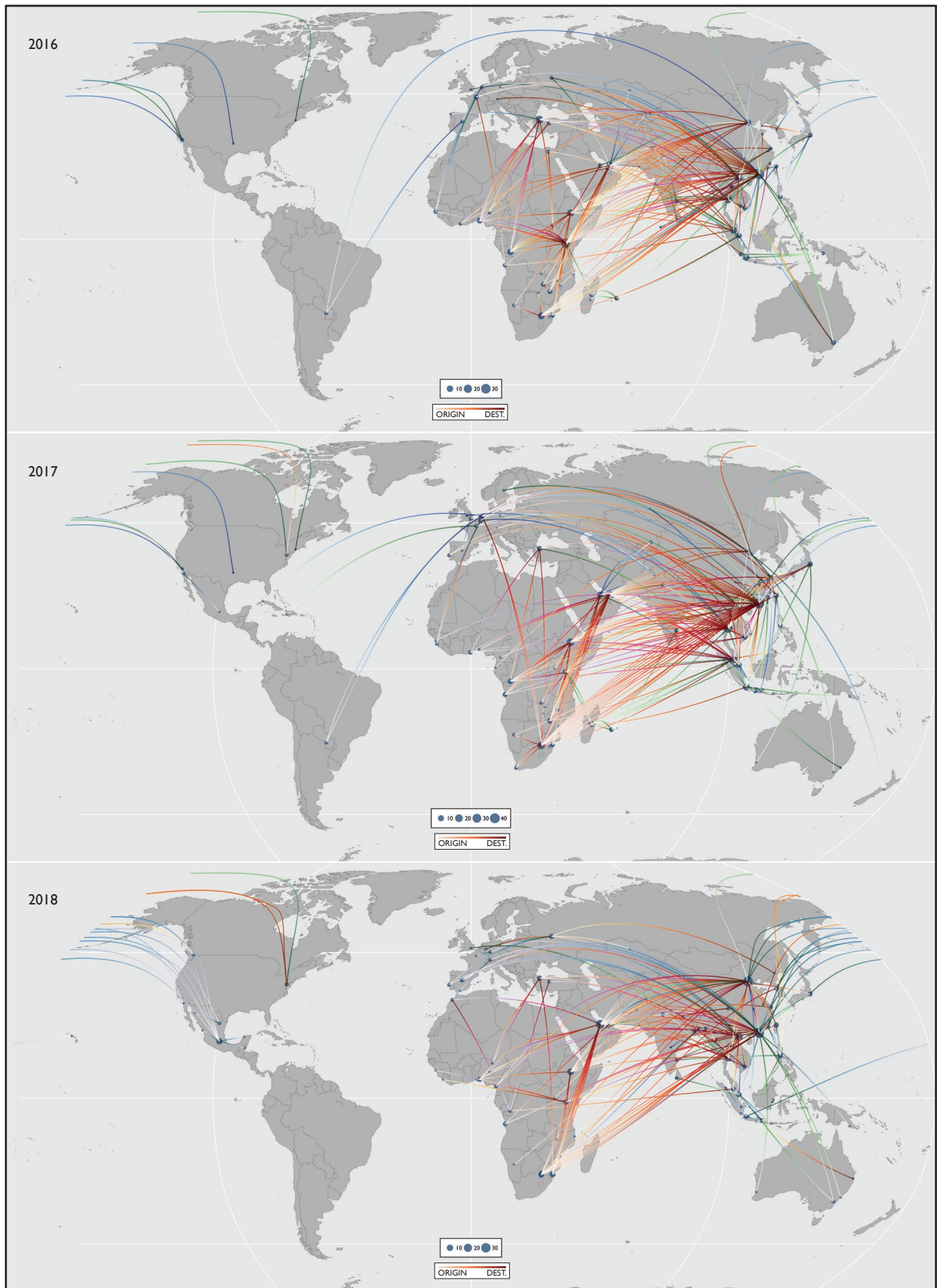


Figure 7. Asian air trafficking routes recorded in the C4ADS Air Seizure Database (2016 – 2018)

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 HEALTH RISKS OF LIVE BIRD TRAFFICKING

The Asian routes map clearly depict the pervasiveness of wildlife trafficking by air in the region, as well as Asian countries' tendency to act as destination points for a vast array of wildlife, importing ivory, reptiles, birds, and other species from all over the world.

Clear flow of wildlife products from Africa to Asia

One of the clearest patterns visible in the Asian routes maps for 2016, 2017, and 2018 is the relatively consistent flow of ivory, rhino horn, and pangolin from African origins to Asian destinations. Each wildlife product tended to originate in a slightly different region of Africa (e.g. rhino horn in South Africa, pangolin in West Africa) destined for a mix of airports in East and Southeast Asia, with no clear destination preference visible. The flight routes for each product clearly relied on transit hubs in the Middle East and Europe, although direct routes from Johannesburg and Nairobi to Bangkok, Hong Kong, and Beijing were also common.

IMPORTANCE OF TRANSIT HUBS

Intra-Asian wildlife trafficking

Although not clearly visible in Figure 7, intra-Asian wildlife trafficking was common, with the C4ADS Air Seizure Dat base capturing intra-regional ivory, rhino horn, reptile, bird, pangolin, marine species, and mammal trafficking instances between 2016 and 2018. Ivory, rhino horn, pangolin, and marine species tended to fly from Southeast Asian countries to China, Vietnam, Singapore or Taiwan, while reptiles, birds, and mammals often originated in South or Southeast Asia destined for a variety of different Asian countries (see **Live Animal Trafficking in Bangkok**).

All animals can potentially carry infectious diseases that, when not managed appropriately, can create a health risk to related species. Birds, for example, can carry over 60 diseases that are transferrable to humans and other species, including Salmonellosis, E. coli, avian tuberculosis, and H5N1.^{xxxii} National and international health organizations have instituted regulations to try to reduce the potential spread of avian diseases by prohibiting the importation of birds from certain countries and requiring that exported and imported birds receive certificates of health before travel. These regulations have become even more crucial as the aviation industry has grown, creating the possibility that the world's next pandemic could be spread farther and more quickly than ever before by airplane.

But wildlife traffickers intentionally operate outside of the legal transportation system and pay no attention to these precautions, and so seizures sometimes include birds sick with infectious diseases.

In one seizure in Singapore on December 9, 2016, officials discovered 12 Chinese hwamei birds (CITES Appendix II) in two Vietnamese men's suitcases.^{xxxiii} The birds had been placed in plastic containers and wrapped in clothing, and one had already died. The Vietnamese suspects were attempting to fly from Changi Airport to Vietnam at the time of the seizure.



Image 6. Plastic containers used to smuggle 12 CITES-protected Chinese hwamei birds. Source: Singapore AVA

A follow-up investigation conducted by the Singapore Agri-Food and Veterinary Authority (AVA) found that the birds had been in the containers for about 12 hours without food or water. They also found that one of the birds tested positive for influenza A strain H3N8 (equine influenza), a virus common in birds, horses, and dogs. H3N8 was the apparent cause of the 1889 to 1890 flu pandemic,^{xxxiv} although it does not generally appear to be transmissible to humans.

FIGURE 8

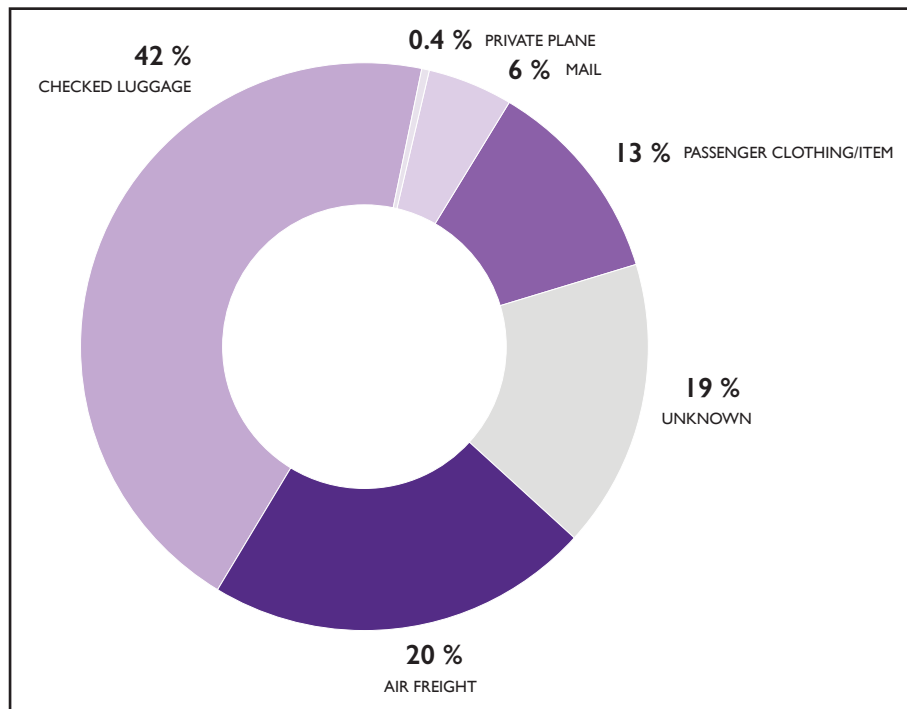


Figure 8. Transport methods for Asian air trafficking instances in the air transport sector (2016 – 2018)

The transport method breakdown for wildlife trafficking instances in Asian countries between 2016 and 2018 is remarkably similar to the one for Africa. Since transport methods are generally dependent on the species or wildlife product being trafficked, this similarity probably reflects the movement of the same wildlife and wildlife products through both regions.

Appearance of mail

Though Asian wildlife trafficking instances were hidden in mail shipments infrequently, Asia counted more mail instances by percentage than Europe, Africa, or the Middle East. Asia's comparatively high number of mail instances was likely driven by particularly good seizure reporting in certain Asian countries.

Small-scale ivory instances increasingly moved in passenger clothing/items

In general, ivory was most frequently moved by checked luggage between 2016 and 2018, although more ivory by weight was moved in air freight. However, as wildlife product processing increasingly moved towards source regions, ivory smuggling attempts hidden in passengers' carry-on bags or clothing seemed to become more frequent.

This apparent shift has at least three potential explanations: it could be that traffickers have found that moving small amounts of ivory repeatedly is safer and easier than moving large shipments; it could be that enforcement officials at destination airports

have become particularly adept at identifying wildlife, and so are now increasingly stopping unwitting tourists with one or two ivory pieces; or it could be that small-scale ivory seizures have always been common, and recent improvements in public seizure reporting have created the appearance of a change in trafficking or enforcement activity.

Either way, 28% of trafficking instances discovered in passengers' carry-on bags or clothing between 2016 and 2018 involved small quantities (usually less than a kilogram) of worked ivory. Other trafficking instances moved by passenger clothing/items were mostly of mammal products like lion fangs and leopard skins, or live birds and mammals intended for sale.

Rhino horn moved in checked luggage

Although other wildlife products commonly smuggled between Africa and Asia seem to be variously smuggled in air freight (pangolin, ivory, and marine species), hidden in checked luggage (ivory and marine species), or carried by passengers (ivory), rhino horn is almost always moved by checked luggage. Between 2016 and 2018, 67% of rhino horn trafficking instances were hidden in checked bags. This is in part because, unless they are heavily processed, rhino horns are too large and unwieldy to carry in anything other than checked luggage and air freight. But rhino horns are also comparatively hard to come by, making large rhino horn trafficking attempts rare and perhaps lessening traffickers' need to rely on potentially expensive air freight shipments.

LIVE ANIMAL TRAFFICKING IN BANGKOK

Asian seizure data compiled within the C4ADS Air Seizure Database suggest that wildlife markets in Asia sell not only Asian animals and processed wildlife products like ivory, but also non-native live animals previously smuggled into Asia. Several recent seizures highlighted the importance of wildlife markets in Bangkok to the live animal trade between Thailand and Japan.

For example, in September 2017, Thai customs officials received a tip that someone was going to try to smuggle wildlife on a Thai Airways flight from Bangkok to Japan.^{xxxv} Thai officials later identified a Japanese man, 53-year-old Kazunori Shirafuji, with two fennec foxes and four jerboas hidden in cages in his luggage in Suvarnabhumi Airport. Neither species is native to Thailand, however; both are generally found in the deserts of North Africa.

In addition, between February and October 2017, customs officials in Bangkok stopped at least four live animal trafficking attempts on their way to Japan. Each was accompanied by one Japanese trafficker, and three involved otters (the fourth was the fennec fox and jerboa seizure). Most were hidden in cages within a suitcase.

In the first seizure in February, a 57-year-old Japanese man, Kazushi Yamamoto, was arrested at Don Mueang Airport in Bangkok with 12 otters, five owls, and three hawks in cages and boxes in his luggage.^{xxxvi} The suspect told authorities he had purchased the animals at Chatuchak Weekend Market to raise as pets back home in Japan. In June, a 42-year-old Japanese man was stopped at Suvarnabhumi Airport with 11 otter pups in his suitcase.^{xxxvii}

He was scheduled to fly to Narita Airport in Japan, and told officials that he had purchased the otters at Chatuchak Weekend Market to keep as pets in Japan.



Image 7. One of the birds seized in Don Mueang Airport in February 2017. Source: The Nation



Image 8. Baby otters found in the suitcase of a woman flying from Bangkok to Narita, Japan. Source: Royal Thai Police

Finally, in October, officials in Don Mueang Airport stopped a 22-year-old Japanese woman, Kaede Yamaguchi, as she tried to check her suitcase for Thai AirAsia X flight XJ600 to Narita.^{xxxviii} Officials discovered 10 otter pups in a basket inside. She told officials that she had felt sorry for the otters when she found them for sale in Chatuchak Weekend Market, and so bought them to raise as pets in Japan.

These seizures indicate that there is demand for live exotic animals, especially otters,^{xxxix} for the pet trade in Japan, and that the Chatuchak Weekend Market in Bangkok is at the center of wildlife trafficking activity in Bangkok. One visitor posted a review of the Market online, stating: "...avoid the animal section because the animals often look like they are in stressing conditions. Every kind of animal you can imagine is sold here. Some are well-kept; some are not... The animal section appears to be the largest part of this market."^{xl}



Image 9. One of the fennec foxes and two of the jerboas seized in Suvarnabhumi Airport. Source: Patipat Jantong

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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 recommendations¹ 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:






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.



