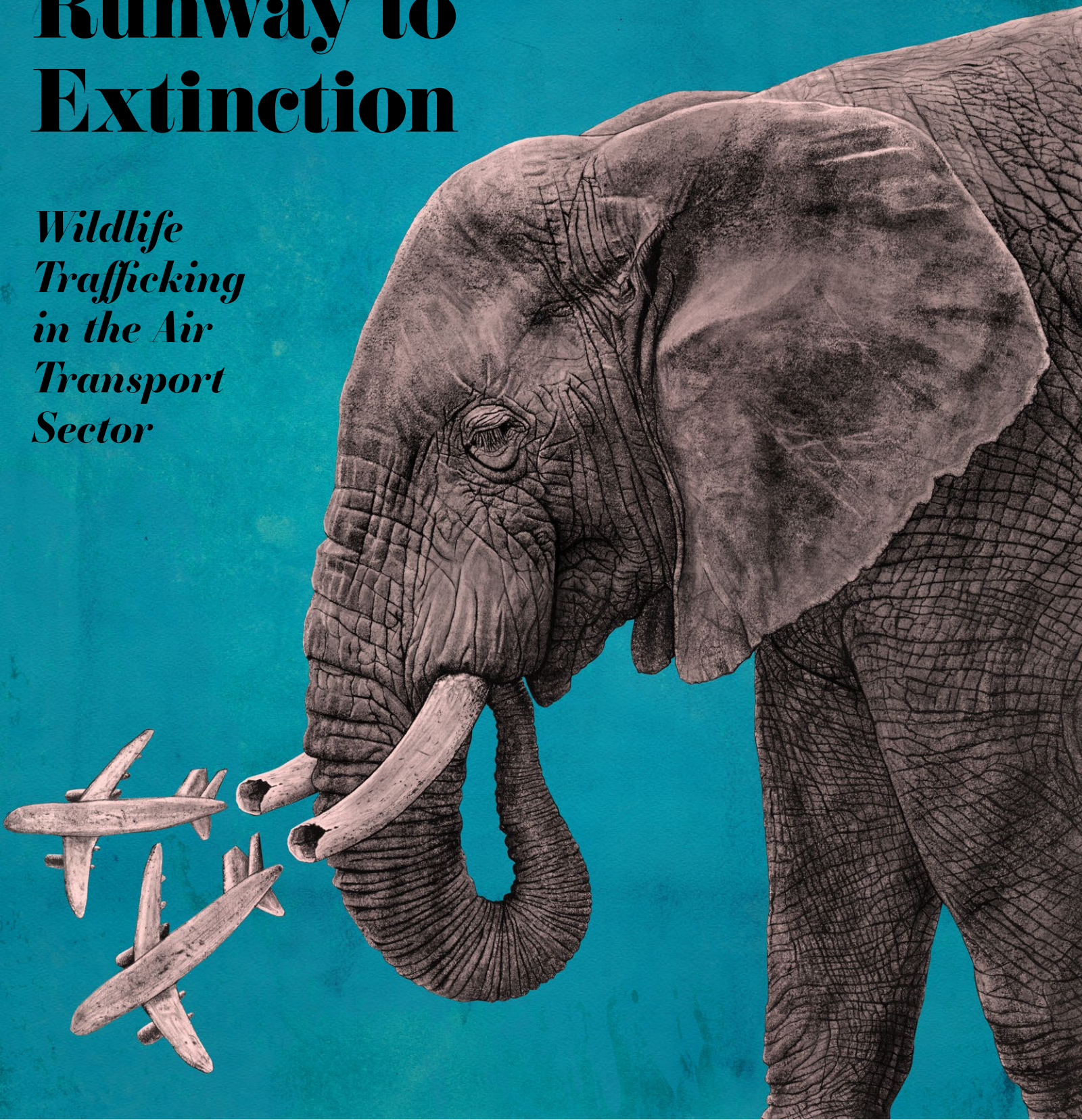


Runway to Extinction

*Wildlife
Trafficking
in the Air
Transport
Sector*



USAID
FROM THE AMERICAN PEOPLE



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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This report is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of C4ADS and do not necessarily reflect the views of USAID, the United States Government, or individual ROUTES partners.

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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.

EUROPE

MAIN TAKEAWAYS

There is significant demand in Europe for live animals for the pet trade, including reptiles and birds.

European eel trafficking is prevalent and likely increasing due to Asian demand, threatening the survival of this critically endangered species.

Most recent mammal seizures in European airports have involved mammal products and derivatives, such as wolf skins, primate skulls, bear bile, and musk deer preputial glands.

Certain European countries with large, international airports, such as France and the Netherlands, often act as transit points for trafficked wildlife and wildlife products moving between source and demand regions in the Americas, Africa, and Asia.

Several European countries had high seizure rates regardless of whether they were primarily origin, transit, or destination points, suggesting that certain customs and enforcement mechanisms can lead to wildlife seizures on departure and in transit, as well as on arrival.

Portugal was one of the main origin points for European eel smuggling attempts, but had one of the lowest seizure rates in Europe. Given the increasing prominence of European eel trafficking, Portuguese officials should try to inspect checked suitcases and air freight shipments on departure for signs of European eels, such as ice packs and plastic bags filled with water hidden in a large number of suitcases or containers.

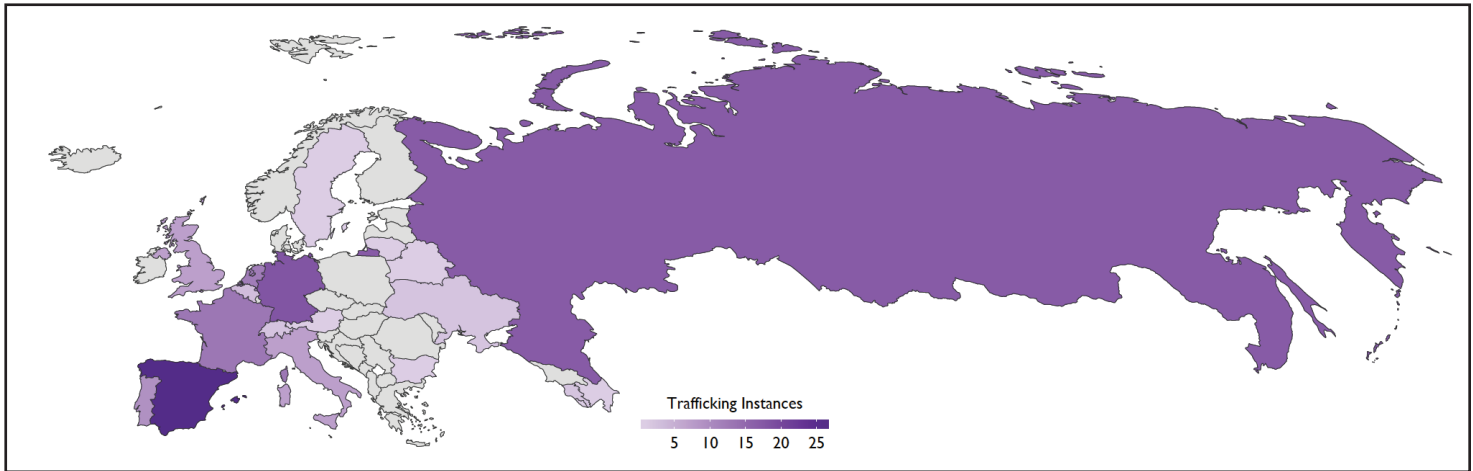


Figure 1. Heat map of wildlife and wildlife product trafficking instances in Europe's air transport sector (2016 – 2018)

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.

Even though Europe is not generally considered a hotspot for wildlife trafficking, the European heat map reveals wildlife trafficking activity throughout the region. A variety of factors contribute to the appearance of the highlighted countries, including significant domestic demand for live animals for the pet trade, transit flights connecting Africa and Asia, Europe-based wildlife trafficking networks, and the presence of native species in high demand in other world regions.

Prominence of Spain

According to the C4ADS Air Seizure Database, Spain counted more trafficking instances than any other European country between 2016 and 2018. Spain's high trafficking instance count was driven by at least one trafficking network operating out of the country and Spain's role as an origin for trafficked species.

Spain functioned as the home base of a wide-ranging bird trafficking network that was involved in as many as 10 or 12 seizures of various bird species between at least 2016 and 2017 (see **Spain & Bird Trafficking in In Plane Sight**). Spain is also home to a significant population of critically endangered European eels living along the country's Atlantic and Mediterranean coastlines, as well as in some of the country's inland waterways (see **European Eel Trafficking**). European eel seizures tend to be particularly large: the six known European eel trafficking instances that originated in Spain between 2016 and 2018 involved well over a million smuggled eels.

Appearance of Russia¹

Russia—though not well-known for involvement in the illegal wildlife trade—holds the world's two largest remaining forests and a large percentage of the world's tundra, which are home to diverse species including reindeer, polar bears, tigers, saiga antelopes, Amur leopards, sturgeons, and peregrine falcons. The country's often overlooked biodiversity, coupled with its proximity to demand regions in Asia and the Middle East, put it at risk of becoming a prominent origin region for certain in-demand species. For instance, there were eight known mammal seizures in Russian airports between 2016 and 2018, most of which involved wildlife products taken from musk deer (preputial glands) or brown bears (paws, gall bladders, and bile), as well as walrus tusks and mammoth ivory. Most of these seizures were destined for South Korea or China.

There also appeared to be a market for certain trafficked species and wildlife products in Russia. For example, Russian citizens have been implicated in a number of seizures of reptiles destined for breeding or sale in the country. These seizures have often involved venomous or poisonous reptiles and insects, such as scorpions, cockroaches, and tarantulas. There have also been a couple of seizures of rhino horns found in the luggage of Russians returning from southern Africa.

¹Although Russia is a Eurasian country, it could not be included in both the European and Asian analyses conducted for this report. Since the majority of Russia's population lives on the western side of the country, C4ADS chose to include Russia within the European analysis.

RUSSIA: A SOURCE COUNTRY OF SMUGGLED WILDLIFE

Russia is not generally thought of as a significant source country for trafficked wildlife. This framing, however, belies Russia's significant role as the principal source of several heavily consumed species, which are used in traditional Asian medicine.

While Russia is not home to many of the animals principally thought of as the main victims of wildlife trafficking, it is home to several animals that are in high demand in East Asia, such as bears and musk deer. Bears are prized in certain Asian countries for their claws and gallbladders, which are used in traditional medicine to treat a wide variety of ailments, from heart pain and liver diseases to headaches, hangovers, cancer, and the common cold.ⁱ

Russia has been used as a source country for bear parts as Asiatic black bear (CITES Appendix I) populations have declined in East and Southeast Asia. For example, in 2017, two Vietnamese passengers en route from Yuzhno-Sakhalinsk Airport to Seoul, South Korea were stopped with four bear paws, one bear gallbladder, and 31 bear claws.ⁱⁱ Similarly, in 2018, a Chinese citizen was arrested attempting to fly from Vladivostok Airport to China with two bear gallbladders.ⁱⁱⁱ

A similar dynamic is visible in seizures of deer parts, which are also prized for their supposed curative properties in traditional medicine. Musk deer in particular are highly prized for their preputial glands, which are reportedly useful in curing skin ailments and poor circulation, and are also in demand for perfume. While China has claimed some limited success in farming musk deer at scale, the current population of the deer within China is insufficient to sustain demand for the musk their glands produce. As such, traffickers have turned their eyes further afield, to the Siberian musk deer (CITES Appendix II), which lives in Russia, Mongolia, China, and Kazakhstan. As a result, musk deer glands are often smuggled through Russian airports. For instance, in 2017, a sniffer dog discovered 12 kilograms of deer glands in coffee bags in the luggage of a South Korean traveler as he attempted to pass through Vladivostok Airport.^{iv} A year later, Russian customs officers in Vladivostok Airport discovered 9.5 kilograms of dried musk glands from more than 352 deer in a warehouse attached to the airport.^v The traffickers tried to transport the glands to China using falsified paperwork from a Russian shell company they established for the smuggling attempt.



Image 1. Some of the musk deer glands seized at Vladivostok Airport in 2018. Source: Far Eastern Operational Customs

Often, seizures of these two products are mixed, with passengers trafficking both musk deer products and bear bile (or bear gallbladders, both dried and fresh). For example, in November of 2016, a couple of passengers traveling to Seoul were arrested with musk deer glands and bear bile.^{vi} Also in 2016, a single Russian traveler was stopped en route from Yuzhno-Sakhalinsk Airport to Seoul with two dried bear gallbladders, 112 Siberian musk deer antlers, sturgeon caviar (CITES Appendix I or II), and chaga mushrooms hidden in his luggage.^{vii}

Russia is also home to several other vulnerable and endangered animal species which are in demand in Asia. These include the Amur tiger (CITES Appendix I), the saiga antelope (CITES Appendix II), and other mammals such as polar bears. These animals are also prized for their body parts, including their skins, claws, and teeth. Though the Russian government seeks to protect these animals from poaching, including through such high-profile measures as having President Vladimir Putin assist in tranquilizing and tagging individual Amur tigers,^{viii} these animals and their derivatives still show up in seizures at international airports.

Finally, Russia is the world's most significant source of mammoth ivory. Although the trade in mammoth ivory is not banned by any international convention, it is still controlled by Russia.^{ix} As a result, the cross-border trafficking of mammoth tusks is a significant challenge for Russian authorities, made more complicated by the fact that China allows commercial trade in mammoth ivory, as it is considered a potential substitute for ivory poached from elephants. Unfortunately, mammoth ivory is also a commonly used subterfuge for elephant ivory, as many customs agents are unable to tell the difference between the two. It seems that, given this loophole, Russia would be more frequently used as a place to "launder" elephant ivory tusks by pretending that they come from mammoths.

While a significant amount of the cross-border trade in mammoth ivory takes place by road or rail from Russia into China or South Korea, a considerable amount moves through airports. For example, in 2018, more than 200 kilograms of mammoth ivory were discovered in Krasnoyarsk Airport on the way to Moscow.^x A smaller seizure in the same airport in the same year involved one 25-year-old Russian individual transporting 10 kilograms of (mammoth) ivory which he reportedly planned to make into souvenirs.^{xi}

Overall, Russia appears to play a fairly significant role in supplying Asian demand markets with certain wildlife products, such as bear gallbladders, musk deer preputial glands, mammoth ivory, and sturgeon caviar. Still, wildlife trafficking in Russia seems to be relatively small-scale, although demand for mammoth ivory as a substitute for elephant ivory could incentivize larger, more organized trafficking networks to enter the mammoth trafficking trade. Finally, according to the C4ADS Air Seizure Database, most trafficking instances leaving Russia were destined for China or South Korea, which appear to be two of the largest demand markets for smuggled Russian wildlife.

IMAGE 3

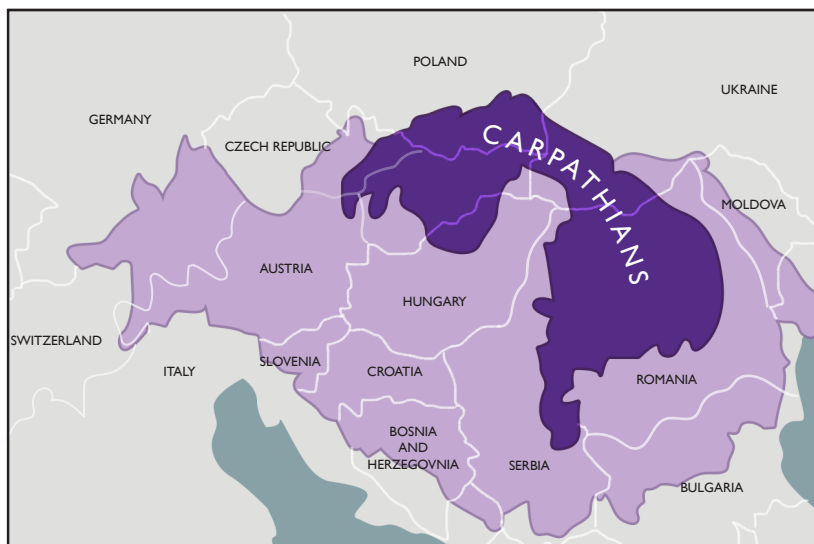


Image 3. The Danube – Carpathian region in Central and Eastern Europe. Source: WWF

At first glance, European countries seem to have made primarily live animal (reptile, bird, marine species, and mammal) seizures between 2016 and 2018, including proportionally more mammal seizures than any other world region. Most of Europe's mammal seizures, however, consisted of animal parts, such as skins, skulls, and meat, transiting through European airports on the way to Asia or carried home from abroad as macabre souvenirs.

Prominence of Germany

According to the C4ADS Air Seizure Database, Germany counted 27% more seizures than any other European country between 2016 and 2018, likely due to the combined effect of efficient enforcement and a relatively high volume of trafficking activity. Germany's seizure count was boosted by its role as a transit point for intraregional and international wildlife trafficking attempts taking advantage of German airports' diverse flight routes.

Importance of the pet trade

Many of the seizures visible in Figure 2 involved animals, particularly birds and reptiles, destined for sale as part of the European pet trade. A few of the reptile seizures highlighted the tendency of traffickers to smuggle animals from their natural habitats to destination markets for breeding and sale. For example, in early June of 2018, a 30-year-old Russian national was stopped on arrival from Madagascar in Domodedovo Airport in Moscow after an X-ray revealed 250 chameleons and geckos hidden in his backpack.^{xvii} He intended to breed and sell the animals, which were worth a combined total of about US\$30,000.

Another seizure emphasized the role that organized trade fairs can play in wildlife trafficking. In August 2016, a German man was arrested at Amsterdam Airport Schiphol on his way home from South Africa after customs officials found about 40 snakes, lizards, and other reptiles, some of which were endangered, packed in his suitcase.^{xviii} A number of the reptiles were already dead. He hoped to sell the animals, which were worth around US\$34,000 total, at a German reptile trade fair.

Involvement of Eastern Europe

Similar to Russia, wildlife trafficking in Eastern Europe receives comparatively little attention, even though Eastern European countries hold a significant portion of Europe's remaining wild areas. The Danube river basin and Carpathian forests in Central and Eastern Europe are reportedly home to two-thirds of Europe's remaining wild bears, wolves, and lynx, in addition to other threatened mammal, bird, and fish species, such as sturgeon.^{xiii} The region's enduring biodiversity may help explain the appearance of some Eastern European countries in the European heat map.

For example, in October 2017 a Ukrainian man tried to smuggle three drugged and bound falcons in his luggage to Dubai.^{xiii} Four months later, a Qatari citizen tried to smuggle a saker falcon he had caught while hunting from Azerbaijan to Doha with forged paperwork and an export permit for poultry.^{xiv}

Other seizures point to the importance of Eastern Europe as a transit area for live animals and wildlife products destined for Russia. In September 2017, a Russian man was on his way back from Vienna when he was stopped in Minsk Airport, Belarus with 54 snakes, 25 spiders, nine scorpions, and five lizards in his carry-on bag.^{xv} Almost a year later in August 2018, another Russian man arrived in Moscow on a flight from Lithuania with two rhino horns in his hand baggage.^{xvi}

FIGURE 2

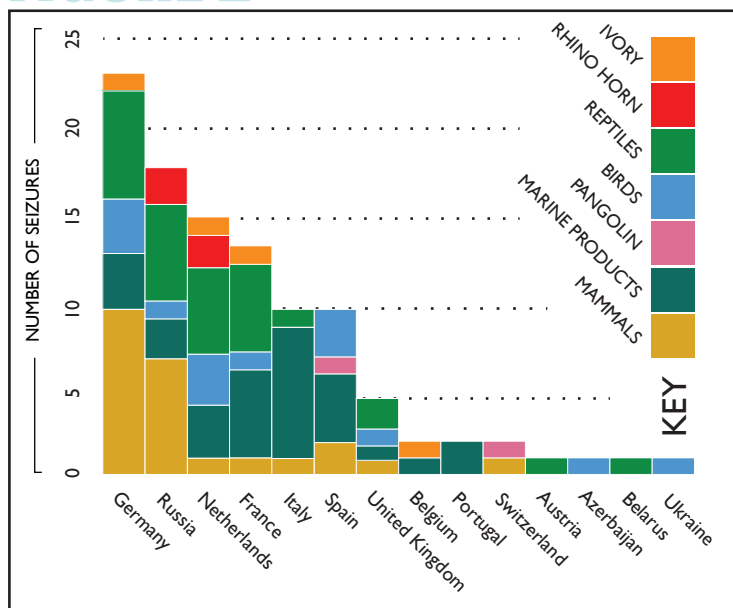


Figure 2. Total seizure count by European country (2016 – 2018)

European eel trafficking

European airports counted more seizures of marine species than of any other type of wildlife between 2016 and 2018, according to the C4ADS Air Seizure Database. Of the 29 marine species seizures in Table 5, almost half (13) involved live European eels on their way from Spain, Portugal, and other European countries to China or Vietnam.

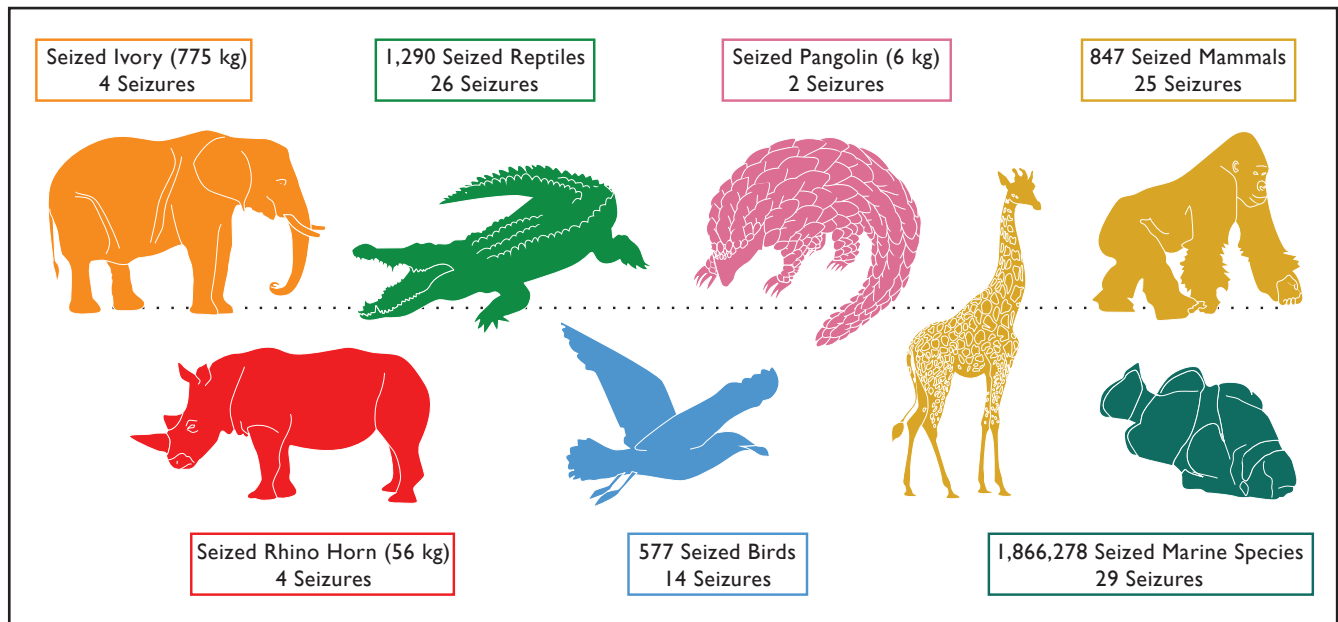


Figure 3. Number of seizures in Europe of each type of wildlife or wildlife product (2016 – 2018)

Of the 13 known European eel seizures within European airports between 2016 and 2018, only six had a reported estimate for the number of eels seized, but those six seizures alone involved at least 1,825,000 eels. Using an estimate of 3,000 eels per kilogram,^{xi} all 13 seizures taken together could represent as many as 5,391,000 eels seized in Europe in a three-year period. This figure is particularly striking given that European eels are critically endangered throughout their habitat in Europe and around the Mediterranean. Furthermore, 10 of these 13 seizures occurred in 2018, suggesting European eel trafficking may be increasing. See **European Eel Trafficking** for more information.

SPANISH TURTLE FARM

Though Europe is not generally considered a hotspot for wildlife trafficking, occasional seizures reveal organized wildlife trafficking networks operating out of European cities at-scale.

For example, in February of 2017, Spanish Civil Guard officers in Palma de Mallorca Airport noticed that a shipment of turtles did not match the information provided in accompanying documentation.^{xx} A subsequent investigation led officials to an industrial turtle farm on the island of Mallorca, where investigators found more than 1,100 turtles (of which more than 200 were females soon to lay eggs) in poor conditions and over 750 eggs.^{xxi} The seized turtles included 14 highly endangered American, Asian, and African turtle species, including Chinese red-necked turtles, Malagasy radiated tortoises, and Vietnamese pond turtles.^{xxii} The network reportedly relied on couriers specializing in reptile and amphibian transportation to ship the turtles to Mallorca.^{xxiii}



Image 3. Video footage published by the Spanish Civil Guard showed dozens of turtles living outdoors in small, plastic containers. Source: Spanish Civil Guard

Officials later arrested two German men suspected of running the farm and a Spanish pet shop owner in Barcelona who reportedly “laundered” the farm-bred turtles through his exotic animal shop.^{xxiv} All three were charged with money laundering and endangered species trafficking. Another three individuals were also reportedly detained.^{xxv}

IVORY, RHINO HORN, AND PANGOLIN IN EUROPE

The near total absence of ivory, rhino horn, and pangolin seizures in Figure 2 likely reflects comparatively little demand for those products in Europe, and presents a clear contrast with wildlife trafficking in Africa, the Middle East, and Asia. Ivory trafficking instances, however, are far more numerous than ivory seizures in Europe (Figure 4),² reflecting the region's role as an occasional transit hub for wildlife products moving between Africa, particularly West Africa, and Asia.

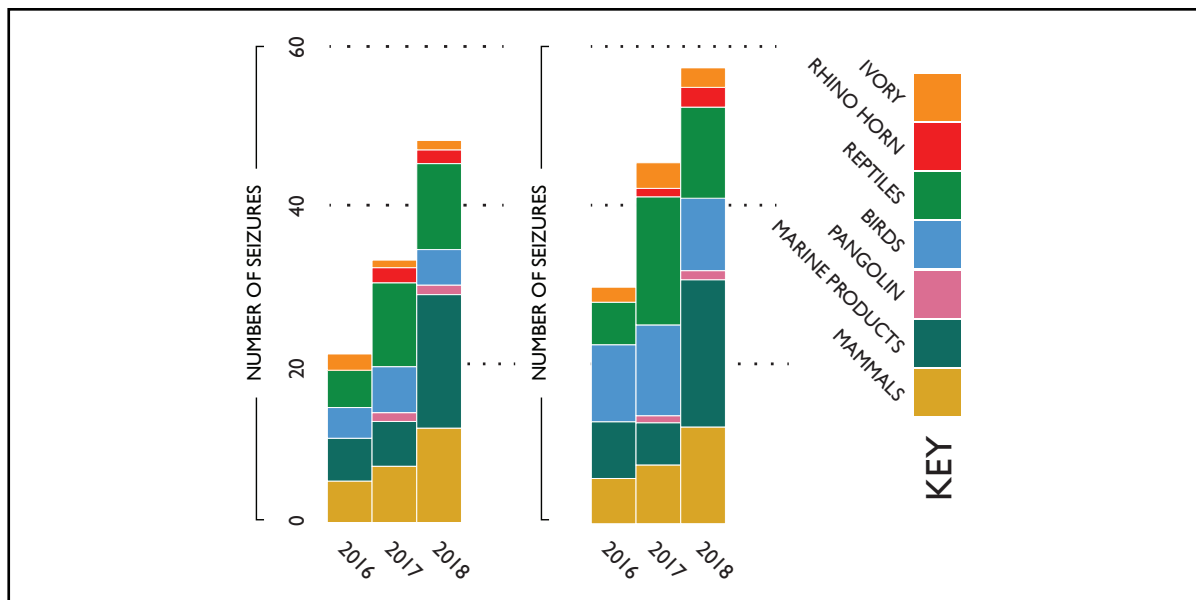


Figure 4. Seizure count and trafficking instance count by wildlife category (2016 – 2018)

To that point, of the known ivory (four), rhino horn (four), and pangolin (two) seizures made in European airports between 2016 and 2018, the majority (six) were stopped as they transited through Europe on their way to China, Vietnam, Lao PDR, or Turkey. Two of the rhino horn seizures were discovered in the possession of Russian nationals returning home, and both pangolin seizures involved the meat of several animals (including a monkey, a crocodile, and a porcupine) in the suitcases of individuals flying from West Africa to Europe. The meat was likely intended for consumption or sale in African markets (see **Europe & the Bushmeat Trade** in *In Plane Sight*).

Europe's apparent role as a transit hub for wildlife product (ivory, rhino horn, and bushmeat) trafficking seems to be confirmed by other recent media and NGO reports. For instance, a 2018 report by TRAFFIC found Belgium to be "a major intermediary in the illegal transport" of reptile meat, ivory, and seahorses.^{xxvi} The report stated that these products were mainly "coming from West and Central Africa, going to China and are being shipped through air transport and postal systems."^{xxvii}

In another well-known example, Czech officials discovered multiple groups of Vietnamese nationals operating rhino horn trafficking rings out of an Asian marketplace in Prague in the early-to-mid-2010s.^{3 xxviii} Between 2010 and 2012, Czech authorities counted seven rhino horn thefts from museums and art galleries in the country. Around the same time, a number of rhino horn shipments leaving South Africa for Vietnam were stopped in South Africa. Shortly thereafter, South African rhino horn shipments began routing through the Czech Republic (see **Prague, Vietnam, & Wildlife Trafficking Networks** in *In Plane Sight*).

A later investigation revealed that Vietnamese nationals were paying Czech citizens, and eventually Czech professional hunters, to apply for rhino hunting permits in South Africa. After their hunts, the Czech hunters would either hand the horns over to a co-conspirator in South Africa or fly them back to the Czech Republic, giving them directly to the Vietnamese traffickers. Investigators at the time also found that the network (or networks) was increasingly diversifying to involve other European countries with little experience in detecting wildlife trafficking, and had been trading in not just rhino horn, but also tiger bones, ivory, drugs, cigarettes, bullets, and counterfeit goods.

In 2018, 15 individuals arrested in association with a 2013 seizure of 24 rhino horns were cleared of all charges by a Czech court.^{xxix} Only one defendant, Mao Nguyen Hue, received jail time (a two year suspended sentence) and a fine (600,000 Czech crowns, equivalent to about US\$27,000).^{xxx}

² There were four known ivory seizures in European airports between 2016 and 2018, compared to at least 10 ivory trafficking instances.

³ See Czech enforcement's report to CITES on this topic, titled "Trade in rhino horns in the territory of the Czech Republic," for detailed information on these networks, their operations, and their use of airports.

Czech Republic. "Trade in rhino horns in the territory of the Czech Republic: Report of Czech enforcement authorities." SC66 Doc. 51.1 Annex 6. 2016. <https://cites.org/sites/default/files/eng/com/sc/66/ESC66-51-01-A6.pdf>.

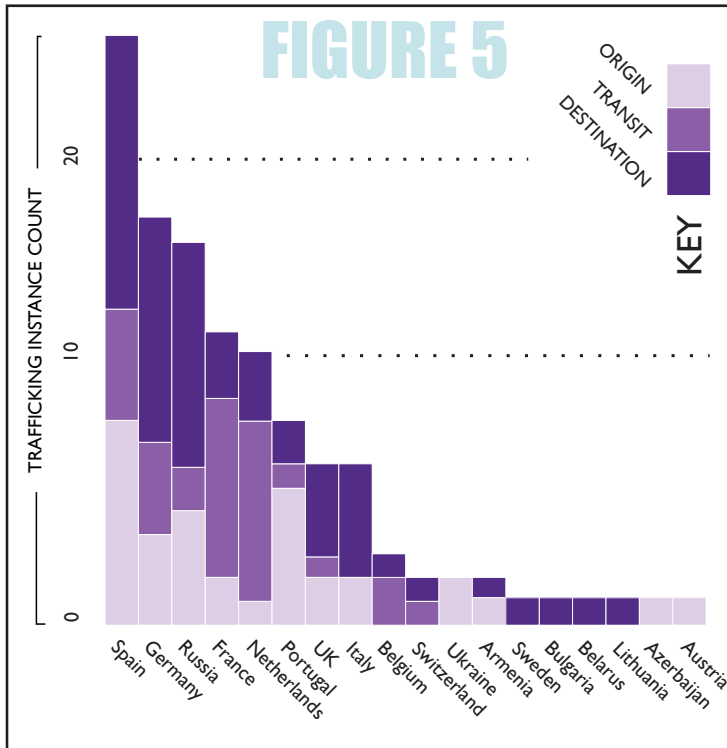


Figure 5. Country-level flight route information for European countries with one or more trafficking instance (2016 – 2018)

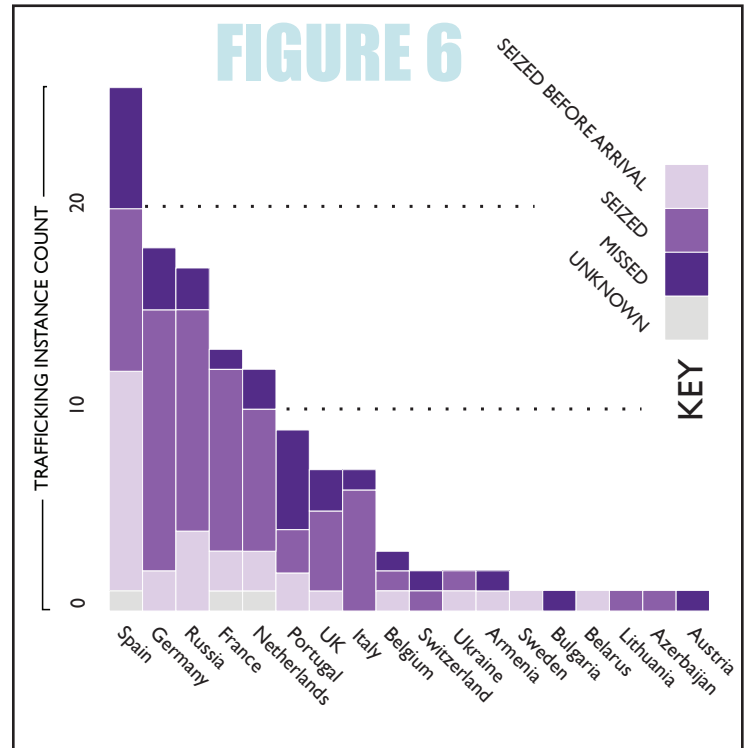


Figure 6. Point of seizure within the supply chain by European country (2016 – 2018)

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.

Perhaps the most striking aspect of European wildlife trafficking is the region's generally high seizure rates, regardless of each country's role (e.g. whether they were primarily origin, transit, or destination points) within wildlife trafficking supply chains.

High seizure rates

In general, countries with high seizure rates are destination countries for wildlife. These high seizure rates are usually driven by customs officials, who screen in-bound passengers and shipments and are therefore more likely to discover trafficked wildlife on arrival. This is reflected in the high seizure rates of some European countries, like Germany, Russia, Italy, and the UK, which were usually destinations for wildlife trafficking instances, according to the C4ADS Air Seizure Database.

However, many successful seizures occurred in non-destination countries as well, including in prominent transit countries the Netherlands and France. Germany itself was almost evenly split between wildlife trafficking instances destined for the country and trafficking instances that originated in Germany or transited through.

Europe's high seizure rates suggest that with the right customs and enforcement mechanisms in place, making seizures on departure and in transit is possible.

DIFFICULTY OF MAKING SEIZURES IN TRANSIT

SECURITY SCREENING AT ORIGIN VERSUS CUSTOMS SCREENING AT DESTINATION

Emergence of Portugal

Portugal appears in Figure 5 as the second-most common origin point for wildlife trafficked by air in Europe. The majority of Portugal's origin instances involved European eels destined for Vietnam or China and hidden in multiple suitcases in 2018.

Of all the countries in Figures 5 and 6, Portugal missed the highest proportion of wildlife trafficking instances. Of Portugal's eight known trafficking instances, only two were seized in Portuguese airports (both European eel trafficking attempts on their way to Vietnam in multiple suitcases). The others involved bird eggs, reptiles (snakes and lizards), ivory, and more European eels destined for either Asia (six instances), Portugal (one instance), or Brazil (one instance).

Prominent transit countries

All three majority transit countries in Figure 5 – the Netherlands, France, and Belgium – acted as hubs connecting Africa and the Americas to Asia and other European destinations. Both France and Belgium acted as transit points for trafficking attempts moving from West Africa to Asia and Europe (see **Ivory, Rhino Horn, and Pangolin Trafficking in Europe**), while the Netherlands was primarily used for trafficking instances leaving South Africa and the Americas for Asia. The importance of all three countries was driven by advantageous flight routes connecting common source regions and demand markets through their international airports.

“Europe's high seizure rates suggest that with the right customs and enforcement mechanisms in place, making seizures on departure and in transit is possible.”

FIGURE 7

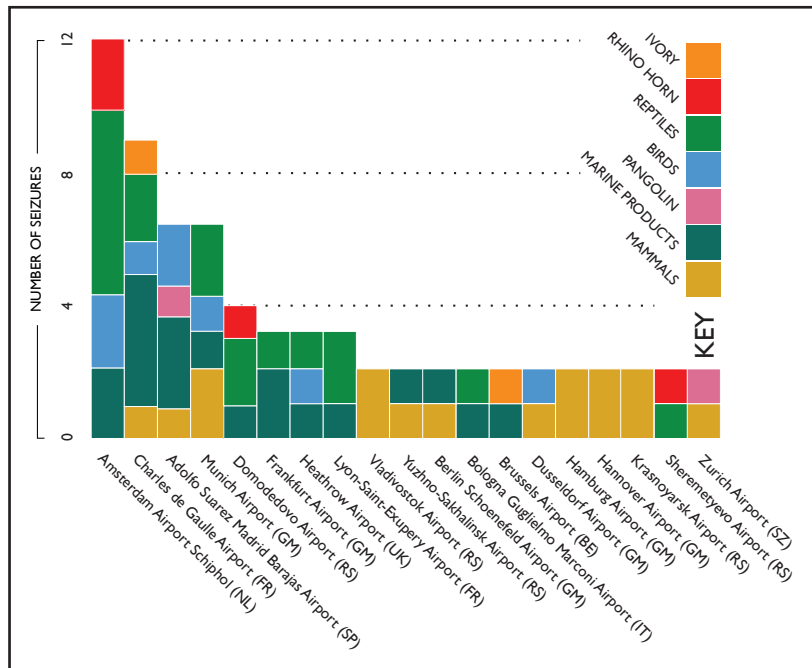


Figure 7. Airport seizure count for European airports with two or more seizures (2016 – 2018)

According to the C4ADS Air Seizure Database, wildlife seizures occurred in at least 47 airports within 15 European countries between 2016 and 2018. Seizures in some countries were split amongst several international airports. This was most clearly evident for Germany and Russia, both of which counted seizures in at least five airports.⁴

Mammal seizures

The 19 airports in Figure 7 made more mammal seizures between 2016 and 2018 than any other type of wildlife included within the C4ADS Air Seizure Database, with 48% of the top airports making at least one mammal seizure.

Marine species seizures

Of the top airports in Figure 7, 63% made marine species seizures. Most of these seizures involved European eels destined for Asia in 2017 and 2018.

Reptile seizures

Reptile seizures were also common in Europe between 2016 and 2018. Trafficked species included pythons, black mambas, chameleons, geckos, boas, turtles, and saltwater crocodiles from at least 18 countries, such as South Africa, Guinea, Mexico, the Solomon Islands, Brazil, Austria, Madagascar, and Algeria. Although the seizures collectively presented few discernible trends, most were smuggled in checked baggage or in passengers' carry-on items, and 81% of the seizures occurred in one of four countries: Germany (six seizures), the Netherlands (five seizures), France (five seizures), or Russia (five seizures).

Seizures concentrated in transit countries

The top two airports by seizure count, Amsterdam Airport Schiphol and Charles de Gaulle Airport, are the primary international airports in transit countries the Netherlands and France. The airports' high seizure counts likely reflect a combination of effective enforcement, high levels of trafficking activity, and good public seizure reporting protocols.

IMPORTANCE OF TRANSIT HUBS

CROCODILES IN THE UK

Violating wildlife transport regulations is detrimental to the well-being of live animals and can result in the seizure of otherwise legal cargo. For example, on April 27, 2018, the UK Border Force seized an illegal shipment of 50 live saltwater crocodiles transported on a flight from Malaysia.^{xxxix} The 50 one-foot-long reptiles were stuffed into five boxes (ten in each) with sufficient room for only four. The cramped conditions led the crocodiles to compete for space during the long flight. One crocodile died while the remaining forty-nine received care before being rehomed.^{xxxix} They were reportedly intended to be used for breeding at a meat farm in Cambridgeshire.

Although news reports of the seizure suggested the shipment was accompanied by a CITES permit, the packaging of the crocodiles did not conform with IATA's Live Animal Regulations,⁵ invalidating the permit and resulting in their seizure.^{xxxix}



Image 5. Ten of the seized crocodiles in one of the boxes they were discovered in. Source: Press Association Images

⁴German airports included Munich Airport, Frankfurt Airport, Berlin Schoenefeld Airport, Dusseldorf Airport, Hamburg Airport, and Hannover Airport, which accounted for 18 seizures total. Russian airports included Domodedovo Airport, Vladivostok Airport, Yuzhno-Sakhalinsk Airport, Krasnoyarsk Airport, and Sheremetyevo

⁵See www.iata.org/whatwedo/cargo/live-animals/Pages/index.aspx for more information. Airport which accounted for 14 seizures total. Airport which accounted for 14 seizures total.

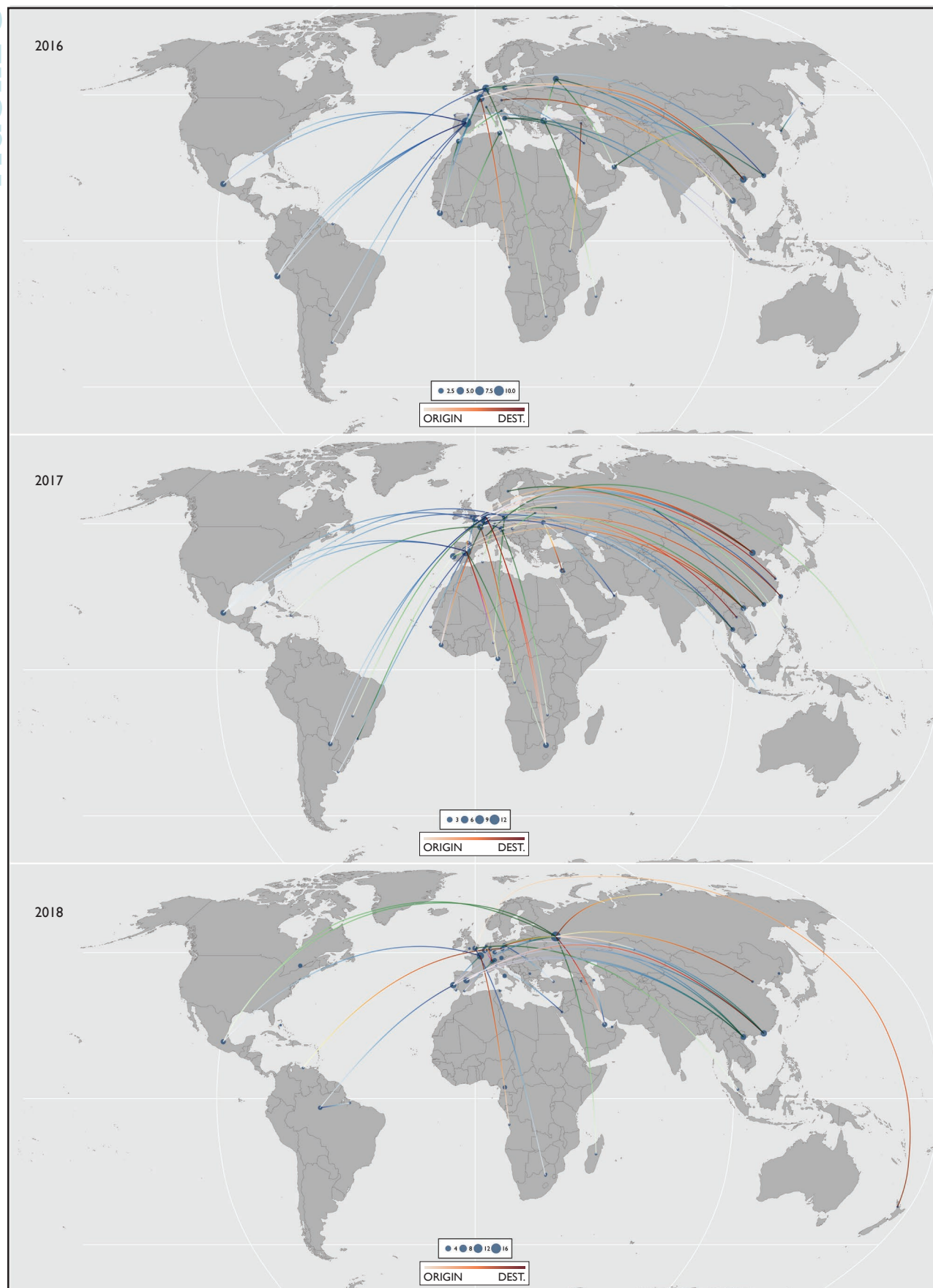


Figure 8. European air trafficking routes recorded in the C4ADS Air Seizure Database (2016 – 2018)

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 European routes maps seem to reflect the region's role as both a transit and destination region for trafficked wildlife and wildlife products, with few trafficking instances originating in the area destined for other world regions.

Decline in bird trafficking instances

Bird trafficking instances, particularly instances originating in the Americas, appeared prominently in the 2016 and 2017 routes maps but seemed to decline in the 2018 map. This apparent drop in trafficking activity could reflect a real change in the frequency of bird trafficking, or it could be a side effect of a change in public seizure reporting, enforcement priorities, or trafficking methods. The decline did, however, coincide with the December 2017 arrest of 29 individuals linked to a Spanish bird trafficking network (see **Spain & Bird Trafficking** in *In Plane Sight*), suggesting that the change in the routes maps depicts a real drop in trafficking activity.

Transit region

Europe often functioned as a crossroads for wildlife trafficking moving between the major world regions, connecting source regions in the Americas and Africa with demand markets in Asia. Ivory and rhino horn in particular often flew through Europe (Germany, France, Belgium, and the Netherlands) on the way to Asia.

But European countries also functioned as common transit points for wildlife trafficking instances destined for Europe. C4ADS documented bird, pangolin, reptile, and mammal trafficking instances passing through European countries – often Spain, France, Germany, or the Netherlands – en route to other European destinations between 2016 and 2018. C4ADS also noted marine species instances originating in one European country and passing through a larger international airport in a second before heading to Asia.

European eel trafficking

The growing significance of European eel trafficking is clear in the European routes maps. While only one eel trafficking instance leaving Europe appears in the 2016 map and only three appear in 2017, 10 are visible in 2018 (a 900% increase between 2016 and 2018). See **European Eel Trafficking** for more information.

FIGURE 9

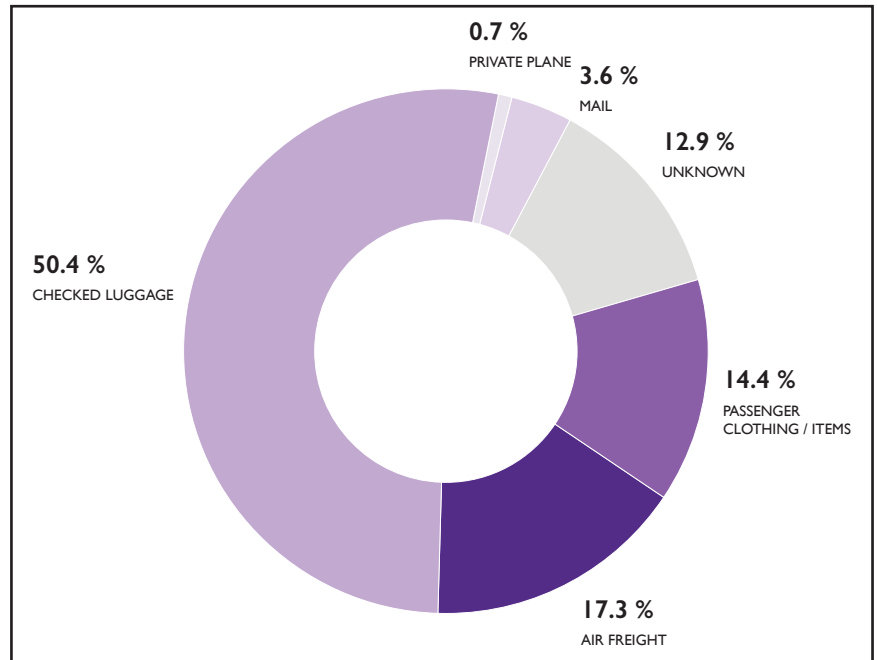


Figure 9. Transport methods for European trafficking instances in the air transport sector (2016 – 2018)

More than 50% of known wildlife trafficking instances in European airports between 2016 and 2018 were moved in checked luggage, probably reflecting the species and wildlife products that are most likely to originate in, pass through, or be destined for European countries. For example, birds, reptiles, European eels, and mammal skulls and skins, all frequently trafficked through Europe, are generally moved in checked bags. In contrast, ivory, pangolin scales, and specific marine species (e.g. abalone), all comparatively rare in Europe, are generally moved by air freight.

Comparatively few unknown seizures

In general, reporting for live animal seizures is more likely to include transport method information, perhaps due to perceived interest in the well-being of the animals. As a result, regions that experience more live animal trafficking will often have few seizures reported without transport method information. The Americas (12% of trafficking instances have no known transport method) and Europe (13%), for instance, tend to experience proportionally more live animal trafficking than Africa (17%) and Asia (18%).

This difference is visible within Europe as well. Of the live animal seizures made in Europe between 2016 and 2018 according to the C4ADS Air Seizure Database, 95% had known transport method information. In contrast, 84% of wildlife product seizures made in Europe during the same timeframe had transport method information.

TRANSPORT METHOD VARIES BY SPECIES

WILDLIFE TRAFFICKING BY MAIL LIKELY UNDERREPRESENTED

BIRD TRAFFICKING: A REPEAT OFFENDER

The 2018 arrest of a notorious and persistent bird trafficker showcased the ease with which many wildlife traffickers exploit the air transport sector with little consequence.

On June 26, 2018, UK Border Force officers stopped a 56-year-old man, Jeffrey Lendrum, arriving in Heathrow Airport from South Africa. When officers questioned and searched the passenger, they discovered 19 bird eggs and two newly-hatched vultures in a body belt around his abdomen.^{xxxiv} The birds included CITES-listed South African birds of prey, such as vultures, eagles, hawks, and kites. After the seizure, Lendrum pled guilty to four counts of fraudulent evasion of duty (i.e. importing protected goods) and was sentenced to 37 months in prison on January 10, 2019.^{xxxv}

Subsequent investigation into Lendrum's past revealed a long history of bird trafficking activity beginning in 1983.^{xxxvi} Lendrum has also been arrested in airports with bird of prey eggs on at least three occasions, including his 2018 arrest:

- On May 3, 2010, Lendrum was arrested at Birmingham Airport as he was about to board a flight to Dubai with 14 peregrine falcon eggs.^{xxxvii} Lendrum was convicted in 2011 to 30 months in prison (commuted to 18 months on appeal).
- On October 21, 2016, Lendrum was arrested in the Emirates Airlines lounge in Guarulhos Airport in Sao Paulo, Brazil with four albino peregrine eggs.^{xxxviii} He was passing through Guarulhos on the way from Santiago, Chile to Dubai in the UAE when he was caught. He was sentenced to 4.5 years in jail,^{xxxix} but was released on bail and escaped back to South Africa⁶ before serving his sentence.

Each of Lendrum's arrests occurred either due to suspicious activity or because of a tip-off. In Birmingham Airport, an airport employee noticed that Lendrum had spent a long time in an airport shower, but had left the shower completely dry.^{xl} The employee also discovered that Lendrum had left a cardboard carton containing a single dyed egg in a diaper bin. Assuming that Lendrum was up to something, the employee alerted police. In 2016, a hotel employee in Chile happened to Google Lendrum's name and tipped off local police, who relayed the information to airport authorities in Sao Paulo.^{xli} Finally, in 2018, Lendrum attracted enforcement officials' attention because he was wearing an unusually heavy coat on a hot day.^{xlii} When he was asked if he had anything to declare, Lendrum replied that he had "some fish eagle and kestrel eggs strapped to his body,"^{xliii} but claimed "he obtained the eggs from a man cutting down trees in South Africa."^{xliv}

Lendrum's behavior clearly illustrated that he and his associates prepared carefully for each trafficking attempt. For example, in February 2010, Lendrum or someone associated with him conducted reconnaissance of different locations in Sri Lanka before attempting to smuggle rare black shaheen peregrine falcons.^{xlv} They prepared by mapping local geography and security force deployments, and conducted a thorough test of screening procedures at Colombo Airport. One of Lendrum's journals read, "A few meters inside doors to departure area there is a security checkpoint consisting of a row of standard baggage X-ray units, walk-through metal detector. The guy who patted me down was very good at it and had been well-trained."^{xlvi}

Even though Lendrum has been arrested at least three times with bird eggs in airports, it does not seem that he ever wavered from his standard trafficking method, always personally carrying the contraband (as opposed to relying on couriers) and often using the same relatively rudimentary body wraps, while carrying associated gear such as mobile incubators and climbing gear that left little doubt about his activities.

Lendrum's tendency to carefully prepare for trafficking attempts, paired with his brazen and repeated use of the same trafficking method, suggests that he was usually successful, so much so that he did not feel the need to change his methods even after his arrests. After his current jail sentence is completed, however, Lendrum's continued success will likely hinge on enforcement's ability to list him as high-risk, either preventing him from traveling or subjecting him to additional screening wherever he goes.



Image 6. Jeffrey Lendrum on June 26, 2018 in Heathrow Airport. Source: Press Association



Image 7. Some of the bird eggs discovered wrapped around Jeffrey Lendrum's torso in 2018. Source: South West News Service

⁶Though Brazilian officials took Lendrum's passport from him after his arrest, Lendrum was allegedly able to leave Brazil by crossing the border into Argentina on foot, carrying a GPS and a backpack stocked with food and water. He then reportedly presented himself at the Irish embassy to get a new passport before flying on to Johannesburg, South Africa. Lendrum's Brazilian lawyer, however, told a reporter that it is more likely Lendrum "simply grabbed a bus across the border and flew home on his South African passport."

Source: <https://www.outsideonline.com/2378786/egg-thief-jeffrey-lendrum-falcon>

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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.



