COMBATING WILDLIFE TRAFFICKING FROM LATIN AMERICA TO THE UNITED STATES

The illegal trade from Mexico, the Caribbean, Central America and South America and what we can do to address it

DEFENDERS OF WILDLIFE

Acknowledgments

Defenders of Wildlife is a national, nonprofit membership organization dedicated to the protection of all native wild animals and plants in their natural communities. Defenders' International Conservation Program is integral to fulfilling this mission because wildlife does not recognize political and territorial boundaries. Multinational and regional approaches are thus vital to the achievement of enduring conservation goals. The program also builds on Defenders' work on the Endangered Species Act (ESA). The most important and fundamental law protecting imperiled species domestically, the ESA also implements the United States' international conservation obligations under the Convention on International Trade in Endangered Species (CITES). Protecting species under CITES is the core of Defenders international work, with a special emphasis on unsustainable or illegal trade in species in North America and Latin America.

Authors
Alejandra Goyenechea and Rosa A. Indenbaum

Contributors
Donald J. Barry
Jamie Rappaport Clark
Michael P. Senatore

Special thanks to Gabriela Chavarria, Ph.D.; Jonathan Kolby, Ph.D.; and Lisa Nichols for their advice and guidance.

Jamie Rappaport Clark, President and CEO
1130 17th Street, N.W.
Washington, D.C. 20036-4604
202.682.9400
www.defenders.org

Cover: © Richard Barnes/Otto
Illegal wildlife products seized at U.S. ports on display in the evidence control area of the U.S. Fish and Wildlife Service Forensics Laboratory, the world's only full-service science lab devoted to crimes against wildlife

Table of Contents

Executive Summary

WILDLIFE TRAFFICKING is one of the most lucrative forms of illegal activity, with an estimated annual global value of $7 billion to $23 billion. About 350 million plants and animals per year are sold on the black market. Every region of the world is experiencing the negative impacts of this illegal wildlife trade as natural resources are stolen by poachers and traffickers. New strategies are desperately needed to counter this growing crisis that threatens our planet's natural heritage.

Discussions on combating wildlife trafficking have focused mainly on elephants, rhinos and tigers in Africa and Asia. Often forgotten, however, is the fact that wildlife trafficking occurs across all continents and threatens a wide range of imperiled species, including exotic birds, sea turtles, coral, caimans, iguanas, pangolins and land tortoises. This report draws attention to two important regions involved in wildlife trafficking that are often overlooked: the United States and Latin America.

The United States is generally accepted as one of the largest consumers of illegal wildlife and wildlife products worldwide. Much of the world's trade in illegal wildlife is either driven by U.S. consumers or passes through U.S. ports on its way to other destinations—making the United States a key player in wildlife trafficking. The value of legal wildlife trade in the United States is estimated at $6 billion annually, the *illegal* wildlife trade at one-third of that or $2 billion annually.

The Latin American region (Mexico the Caribbean, Central America and South America) experiences the same perfect storm of factors that have led to rampant wildlife trafficking in other regions: It is home to many developing countries, has thousands of imperiled and endemic species, and struggles with corruption and enforcement. Consequently, the United Nations designated Latin America a priority region in combating wildlife crime.

The purpose of this report is to help the United States address this growing crisis by 1) assessing the capacity of the U.S. Fish and Wildlife Service (FWS) to detect and deter wildlife trafficking and to collect and analyze data on this illegal activity; 2) analyzing the effectiveness of existing law enforcement mechanisms and proposals for enhancing the overall capacity of the federal government to counter wildlife trafficking 3) identifying current patterns of high-volume trafficking from Latin America; and 4) identifying gaps in the existing response to wildlife crimes at our ports of entry.

CAPACITY OF WILDLIFE LAW ENFORCEMENT AT U.S. PORTS OF ENTRY

While numerous federal and state agencies are involved in enforcing wildlife laws in the United States, FWS holds the primary authority for inspecting wildlife shipments at our ports of entry. What is painfully clear throughout this analysis is that FWS enforcement officials are incredibly dedicated but thwarted by inadequate budget and staffing and an overwhelming workload.

Wildlife inspectors—the FWS's front-line defense against the illegal wildlife trade entering this country—are tasked with ensuring that wildlife shipments, both imports and exports, comply with national and international wildlife protection laws. Out of the 328 ports of entry into the United States recognized by the Customs and Border Patrol, only 64 are currently covered by FWS wildlife inspectors. Only 18 of these ports are for the import/export of wildlife and staffed full-time by wildlife inspectors.

With only 130 wildlife inspectors total spread throughout the entire country, most high-volume ports of entry are understaffed. Other ports have no full-time staff whatsoever. The magnitude of the inspectors' task is apparent when you consider that some ports of entry include more than one facility (such as multiple airports, sea ports or

border crossings) and that out of the millions of shipments that typically pass through most of these ports each year, FWS inspected a total of 180,463 wildlife shipments nationwide in 2014.

Although the FWS Office of Law Enforcement is significantly understaffed, its capacity for data collection on wildlife shipments is unmatched. The inspectors enter detailed information on legal and illegal wildlife in the Law Enforcement Management Information System (LEMIS), an extensive database managed by FWS. However, it does not appear that the data collected through LEMIS is being comprehensively utilized to analyze and assess the effectiveness of current FWS approaches to combating wildlife trafficking. The LEMIS database is a valuable but under-utilized analytical tool for identifying successes and improving enforcement efficiency and effectiveness.

EXISTING U.S. MECHANISMS FOR COMBATING WILDLIFE TRAFFICKING

Based on the identified strengths and weaknesses of FWS law enforcement in overseeing international wildlife trade in the United States, this report next discusses the effectiveness of existing domestic mechanisms for combating wildlife trafficking, specifically how those mechanisms could 1) enhance the capacity of FWS, and 2) reduce domestic consumer demand for illegal wildlife and wildlife products.

Executive Order 13684 on Combating Wildlife Trafficking, issued by President Obama in 2013, called wildlife trafficking an international crisis and signaled strong political recognition of the need to do much more to address wildlife trafficking successfully. The Executive Order gave rise to the National Strategy which identified three priorities: strengthening enforcement, reducing demand and expanding international cooperation.

Unfortunately, the analysis conducted for this report shows that despite the high-level general commitment of the United States to strengthening enforcement, few increases to the law enforcement capacity of FWS have actually been made. In fact, following the release of the Executive Order the number of wildlife inspectors actually dropped from 140 to 130 in 2014, and there are no current plans to hire more.

Efforts appear to be stalled at the policy level and have yet to be translated into on-the-ground activities and an enhancement of FWS inspection capability at U.S. ports of entry. The United States remains one of the major consumer countries and a high-transit region for illegal wildlife and has been alarmingly unwilling to provide the financial resources necessary to build enforcement and inspection capacity or to provide the training and data analysis required to reduce wildlife trafficking within its own borders. Instead, the United States continues to rely entirely on inadequate inspection fees to cover the costs of its wildlife inspection program.

The United States remains one of the major consumer countries and a high-transit region for illegal wildlife and has been alarmingly unwilling to provide the financial resources necessary to build enforcement and inspection capacity or to provide the training and data analysis required to reduce wildlife trafficking within its own borders.

ANALYSIS OF A CRISIS: TRENDS IN ILLEGAL WILDLIFE IMPORTS FROM LATIN AMERICA TO THE UNITED STATES

Effective enforcement responses to the patterns of illegal trade in wildlife must reflect the unique and the common characteristics of various illegal supply chains. The analysis conducted for this report shows that while trends in wildlife trafficking do share similarities on a global scale, regional nuances, such as species and trade routes, require different approaches by enforcement officials.

Data on 4,056 individual shipments from Latin America seized at U.S. ports of entry between 2004 and 2013 was reviewed. These shipments contained wildlife protected under the Convention on the Trade in Endangered Species (CITES) and/or the Endangered Species Act (ESA) that was illegally imported. Analysis of this data identified top countries of export, top ports of entry and top trade routes.

Top Countries of Export and Ports of Entry

The top-three countries of export for illegal wildlife shipments were Mexico, Haiti and El Salvador, in that order. Shockingly, 48.1 percent of all shipments seized were exported from Mexico.

The top-three ports of entry were El Paso, Texas, Miami, Florida, and Houston, Texas. More than 20 percent of all illegal wildlife shipment seizures were made in El Paso, another 20 percent in Miami.

Most Used Trade Routes

The five most used trade routes (country of export to port of entry) for illegal wildlife shipments entering the United States from Latin America were Mexico to El Paso, Texas; Haiti to Miami, Florida; Mexico to San Diego, California; Mexico to Louisville, Kentucky; and the Bahamas to Miami, Florida (The country of export is not necessarily the country where a shipment originates; it is the last country through which the shipment passes before entering the United States.)

The route from Mexico to El Paso, Texas was used most frequently, logging a total of 22.6 percent of all seized illegal shipments. Together, the top three trade routes were used by 37.3 percent of the illegal wildlife shipments seized from 2004 to 2013.

Most Commonly Trafficked Animals and Products

The most frequently seized species—live, dead or in product form—were queen conch, sea turtles, caimans, crocodiles and iguanas. The data also contained information on the listing status of the seized species under CITES. What the data on CITES-listed species revealed was of particularly great concern: At least 20 percent of all seized segments involved species listed under Appendix I of CITES, which bans all commercial shipments and trade in species on that list.

That means that in the 10-year span from 2004 to 2013 one-in-five segments involved species or items derived from a species endangered on an international scale. Fifty-six different types of items were discovered in the seized shipments.

Further analysis indicated that the illegal products in highest demand by U.S. consumers included meat (68,841 pounds), eggs (9,128 eggs), and shoes (5,760 individual shoes). In total, some 47,914 illegal wildlife products, 81,526 pounds of illegal wildlife and 7,111 illegal animals were seized from 2004 to 2013.

Inspection Rates vs. Volume of Trade

Most ports of entry consist of multiple locations. For example, Los Angeles is a single port of entry, but its inspectors cover two sea ports, four airports and several courier facilities. While these inspectors examined 22,409 imported wildlife shipments in 2013, the various receiving facilities combined processed more than 1.9 million tons of air cargo, 5.5 million containers and 3.9 million tons of ocean freight in the same year, likely meaning an untold number of illegal wildlife shipments are going undetected. It is clear from the numbers: The dedicated wildlife inspectors at U.S. ports of entry are overwhelmed and outnumbered by the volume of shipments transiting the United States each year.

ADDRESSING THE CRISIS: RECOMMENDATIONS

Based on the gaps in the existing federal response to wildlife trafficking from Latin America identified in the data analysis, recommendations for the government, private business sector and general public were formulated. These recommendations address inadequate enforcement capacity at ports of entry that are hot spots of illegal activity, funding constraints, data gathering procedure improvements and consumer-demand reduction.

For the Federal Government

- **Funding:** Implement a long overdue inspection fee increase, secure appropriations funding for FWS to hire additional officers, and implement a new user-fee program.

- **Personnel:** Significantly increase the number of wildlife inspectors so that all 64 ports of entry are staffed full-time and ports of entry that see high volumes of illegal trade from the Latin American region have enhanced enforcement capacity. Supplement this force with additional detector dogs.

- **Training:** Ensure that training for wildlife inspectors reflects currently identified gaps in efficiency, such as improving the accuracy of data gathering with regards to the identification of seized species.

- **Policy:** Reaffirm the original intent of Executive Order 13684 and redouble efforts to enhance domestic law enforcement capacity and decrease domestic consumer demands for illegal wildlife.

- **Information Gathering and Analysis:** Improve the efficiency and effectiveness in the application of the currently limited resources by replicating the methodology of this report to analyze data on illegal wildlife seizures from other regions of the world to identify additional hot spot top ports of entry and allocate resources accordingly.

For the Private Business Sector

- **Transportation Bans:** Work cooperatively with FWS law enforcement to combat wildlife trafficking from the Latin American region, and, where appropriate, ban the transportation of particular wildlife species or products consistently found in illegal trade.

- **U.S. Tour Operations.** Do not include questionable activities and destinations on Latin American tour itineraries. Such activities include "wildlife encounters" that feature captive animals taken from the wild and shopping where illegal wildlife products are sold.

- **Sustainable U.S. Business Practices.** Ensure that any imported wildlife products sourced from Latin America come from sustainable sources and are accompanied by proper legal documentation.

For the U. S. Public

- **Awareness:** Learn about wildlife trafficking from Latin America and other regions and its impacts on protected species, and share information with family and friends. Lack of awareness can lead to inadvertent acquisition of illegal wildlife and derivative products.

- **Conscious Consumerism:** Do not consume or purchase illegal wildlife or wildlife products. If the source of a product is unknown or uncertain, avoid it.

- **Ecotourism:** Carefully choose travel destinations, activities and purchases to avoid contributing to wildlife trafficking. Use only tour companies that employ sustainable practices.

CONCLUSION

The United States has many strengths in this fight, including data collection capacities beyond almost any other country, dedicated but far too few wildlife inspectors and high level political recognition of the serious threats posed by wildlife trafficking.

However, the United States to date has focused most of its attention on the illegal wildlife trade in Africa and Asia. We can and must do better by improving our analysis of collected data, increasing funding for efforts to combat wildlife trafficking here at home—particularly law enforcement and wildlife inspection at U.S. ports of entry —and reducing U.S. consumer demand for illegal wildlife products.

There is a lot to be done, but with the U.S. government, businesses and citizens working together we can put the brakes on wildlife trafficking.

Foreword

IT'S TYPICAL TO THINK of wildlife trafficking as a faraway problem, something that happens mostly in China, where the sale of massive amounts of smuggled elephant ivory and the consumption of shark fin soup, bear bile, tiger bones and blood, and other unusual "traditional" remedies for whatever ails you has been well-documented. But, in fact, the United States is one of the largest consumers of illegal wildlife products. That's a shocking realization considering the strong network of laws and treaties we have in place to protect wildlife—from the Lacey Act, passed in 1900, to the Migratory Bird Treaty Act, the Marine Mammal Protection Act, the Endangered Species Act, and the Convention on International Trade in Endangered and Threatened Species (CITES). Unfortunately, these important laws and treaties are not enough. Without a strong and renewed commitment from Congress to provide adequate funding for effective implementation, these laws and treaties are just hollow words.

As a former director of the U.S. Fish and Wildlife Service (FWS), the federal agency primarily responsible for stopping the flow of smuggled wildlife and wildlife products across our borders, I know firsthand the challenges of tackling this ever-growing global crisis. I also know that with adequate law enforcement resources, we can do our part as a nation to shut down the U.S. black market for illegal wildlife products and end this lucrative trade for poachers and wildlife smugglers.

With adequate law enforcement resources, we can do our part as a nation to shut down the U.S. black market for illegal wildlife products and end this lucrative trade for poachers and wildlife smugglers.

While I was director, FWS ramped up enforcement efforts to stop illegal caviar from endangered sturgeon in Russia from entering the United States, the largest consumer of this black market product. Sturgeon were quickly heading toward extinction, and we knew we had to act. We mounted a major law enforcement operation and in a mere seven months shut down a large caviar operation that had illegally smuggled and sold more than 21,000 pounds of caviar for millions of dollars. This is just one example of the great work FWS inspectors and special agents can do with adequate resources. Wildlife trafficking is a multi-billion dollar industry. President Obama has called it an international crisis. We need to treat it like one.

Given the horrific slaughter of elephants and rhinos taking place in Africa, it's understandable that the illegal trade in elephant ivory and rhinoceros horns is getting most of the media attention these days. But many other species are also being decimated by the relentless demand for illegal wildlife products, and our own our borders are very porous to wildlife trafficking. Millions of shipping containers and shipments from foreign countries arrive at U.S. ports of entry each year, and

only a small fraction are being inspected for illegal wildlife contraband. Not only is the volume of trade overwhelming, some parts of the world are overlooked as major routes and sources of wildlife trafficking into the United States.

This report focuses on one such area: Latin America, including Mexico and the Caribbean. This is a region of countries and territories with economies that rely on healthy wildlife populations for tourism. But many of the species attractive to tourists—queen conches, parrots, sea turtles, caiman, crocodiles and iguanas—are in high demand on the black market. These species are being harvested and smuggled into the United States in alarming numbers; most as shells, meat, eggs, shoes, boots, belts, wallets and other trinkets and home decorations, much of it purchased by consumers who do not even know they are buying illegal wildlife parts or products.

We can't continue to treat the flood of illegal wildlife products into this country as a low priority issue. It's time for us to act.

First, Congress must significantly increase funding for FWS law enforcement efforts to allow the agency to dramatically increase the number of wildlife inspectors at our ports of entry and the number of special agents to enforce our wildlife laws. Increasing FWS inspection fees, which have not been raised since 2008, could provide additional funding for wildlife inspectors.

Expanding the use of existing tools, such as trained wildlife inspection dogs that can examine shipments 100 times faster than humans alone, could significantly improve enforcement at U.S. ports of entry. We must also reduce market demands for vulnerable species and their products by educating American consumers about the illegal wildlife trade and it impacts on imperiled species and how our appetites and fashion desires provide the economic fuel for continued poaching and smuggling. No species should be sacrificed to produce a nice pair of boots or an exotic bowl of soup.

By increasing inspection enforcement and stopping domestic demand, we can have a significant impact on the U.S. black market for imperiled wildlife and wildlife products. But it will take all of us working together to force this market into extinction before it drives some of our treasured species there first.

Jamie Rappaport Clark
President and CEO
Defenders of Wildlife

1

Wildlife Trafficking from Latin America: A Growing Crisis

WILDLIFE TRAFFICKING is one of the most lucrative forms of illegal activity,[1] with an estimated annual global value of $7 billion to $23 billion USD.[2] In the last 10 years the price of trafficked wildlife and wildlife parts has increased at an alarming rate, creating a new crime wave specifically targeting plants and animals.[3] Currently, an estimated 350 million plants and animals are sold on the black market every year.[4] The threats posed by this illegal activity are serious and varied, ranging from an irreplaceable loss of species and biodiversity and disturbances within larger ecosystems, to the spread of viruses and disease, to economic losses, to regional and national security risks.[5] Every region of the world is experiencing the negative impacts of the illegal trade in wildlife as natural resources are stolen by poachers and traffickers.[6] New strategies are needed to counter this growing illegal activity and threat to our planet's natural heritage.[7]

Wildlife trafficking is the illegal taking, trading, supplying, selling, importing, exporting, processing, possessing, procurement and consumption of wild fauna in contravention of national or international law.[8] It may also include trade in timber[9] and ornamental products, such as corals, orchids and medicinal plants.[10] Wildlife trafficking ranges in scale from local, single-item exchanges to multi-ton commercial shipments.[11]

Discussions on addressing international wildlife trafficking have focused mainly on elephants, rhinos and tigers in Africa and Asia. Often forgotten is the fact that wildlife trafficking occurs across all continents and threatens a wide range of species including pangolins, exotic birds, corals, sea turtles, iguanas and land tortoises.[12]

FOCUS ON LATIN AMERICA

This report aims to draw attention to two important but often overlooked areas involved in wildlife trafficking: Latin America and the United States.

Wildlife trafficking in Latin America does not get as much attention from the public and the media as the ivory and rhino horn trades in Asia and Africa.[13] This lack of global attention is precisely what makes the region vulnerable to this illegal activity, which disproportionately impacts parts of the developing world that have valuable natural resources but lack the capacity and political will required to manage them effectively.[14] Latin American has been identified as a source and transit country for wildlife crime.[15]

Like other regions where wildlife trafficking is rampant, Latin America, which in this report includes Mexico and the Caribbean, has a perfect storm of factors conducive to this illegal activity. The region comprises many developing countries, is home to thousands of endemic and endangered species, and struggles with corruption and enforcement.[16] Mexico, parts of the Caribbean, and Peru are wildlife-trafficking hotspots.[17] In Central America, legal wildlife trade is a highly profitable business involving numerous species and their products.[18] Wildlife crime is so prevalent in Latin America and the Caribbean that the United Nations has identified the area as a priority region in combating wildlife crime.[19] Wildlife trafficking in Latin America serves a high-volume but low-price domestic market in addition to a low-volume but sky-high-price foreign export market.[20] One such foreign market is the United States.

The United States is generally believed to be one of the largest consumers of illegal wildlife and wildlife products.[21]

This is no surprise given that the world's biggest trading partners are also the world's biggest markets for illegal goods in general.[22] In fact, much of the world's illegal trade in wildlife is either driven by U.S. consumers or passes through U.S. ports on its way to other destinations,[23] making the United States a key player in wildlife trafficking. In particular, the United States is a major consumer of rare reptiles including crocodiles, caimans and sea turtles,[24] common illegal imports from Latin America. The value of *legal* wildlife trade in the United States is estimated at $6 billion annually; the *illegal* wildlife trade at one-third of that or $2 billion annually.[25] Due to the nature of the trade, however, obtaining reliable figures on its value is very difficult.[26]

People in the United States and Europe seeking rare and exotic plants and animals drive much of the demand for illegal wildlife from Latin America.[27] Consumer demand remains the most important driver of wildlife trafficking.[28] In addition to being a consumer country, the United States is also a transit point for trafficked wildlife moving from range and source countries to other markets around the globe.[29] Therefore, reducing demand in combination with increased law enforcement in the United States would have a waterfall effect, diminishing one of the highest demand markets and stemming the use of the United States as a transit point for illegal wildlife shipments destined for other regions of the world. Focusing efforts on combating wildlife trafficking domestically is the most effective way for the United States to help reduce wildlife trafficking.

CHALLENGES IN COMBATING WILDLIFE TRAFFICKING

Combating wildlife trafficking involves many of the same obstacles as the illegal markets involving drugs, weapons and humans. Like these other markets, wildlife trafficking lacks data.[30] Because it is a black market, it is difficult to measure the quantity, frequency and value of the illegal wildlife trade with certainty.[31] There is also a lack of systematic and in-depth analytic research on the causes, concepts, circumstances and characteristics of the trade.[32] Another commonality is the fact that wildlife trafficking is transnational—supply and consumption often take place thousands of miles apart.[33] This transnational aspect requires multi-lateral solutions and efforts that necessitate navigating sensitive political relationships alongside international, regional and domestic laws.

Wildlife trafficking also presents unique issues not found in other illegal markets. One is the urgency with which wildlife trafficking needs to be addressed.[34] Unlike the continuous production of drugs and arms, wildlife is often a finite resource in that trade can outstrip the ability of target species to reproduce. This is particularly the case when dealing with illegal trade in threatened and endangered species. In addition, many wild animals are easily accessible and unguarded, making them easy targets. By some estimates, the scale and scope of wildlife trafficking has already reversed decades of conservation gains.[35]

Unlike the illegal trade in drugs, arms and humans, wildlife trafficking still faces an uphill battle in terms of political attention.[36] Historically, wildlife trafficking has been a low priority for governments,[37] and without political will it is difficult to make progress in combating wildlife trafficking. Even if political will exists, governments often suffer from capacity gaps such as insufficient personnel, expertise, training, funding and equipment.[38]

In addition, no consistent mechanism for monitoring wildlife populations throughout the world exists.[39] The International Union for the Conservation of Nature (IUCN) Red List comes closest to being a global monitoring tool, but has only been able to assess a small number of the world's animal species in the last 50 years.[40] Without a comprehensive and effective system for monitoring the status of wildlife populations, it is not possible to accurately quantify the impact of the illegal trade on wild animal and plant species.

Another aspect of wildlife trafficking that makes it particularly difficult to combat is that a large parallel *legal* market exists for many of these species. Thus, legal trade in the same products often facilitates the illegal trade in wildlife by serving as a cover for illegal activity.[41] In Latin America, legal and illegal products become mixed or are exported literally alongside one another.[42] In addition—as is the case with other commodities—even when a wildlife product is legally available, it is often cheaper to obtain it from illegal sources.[43] This simultaneous trade puts heavy burdens on customs enforcement and law enforcement officials to detect and distinguish between legal and illegal items.

Finally, combating wildlife trafficking is also hindered by insufficient law enforcement. In many countries wildlife crimes simply are not taken as seriously as drug and arms offenses. Even though the United Nations Economic and Social Council has encouraged member countries to treat wildlife crime as a "serious crime" under the United Nations Convention against Transnational Organized

Crime since 2013,[44] little progress has been made. Even in countries with strong wildlife trafficking laws on the books, challenges remain in educating judges and prosecutors on the effective enforcement of these laws.[i] Growing recognition of the ties between wildlife trafficking and other crimes, such as money laundering and corruption, is a step in the right direction.[45]

These intricacies inherently require a comprehensive and diverse solution for addressing the illegal wildlife trade that includes short-term and long-term responses and domestic, regional and international action.[46] Thus, it is understandable that progress in combating wildlife crime has been slow and largely unsuccessful. While much discussion has occurred at the international level to develop policy approaches, we are only now beginning to see how these policies would be put into effect on the ground.

Fortunately, the difficult task of effectively combating wildlife trafficking is receiving increased political and public attention. Many international bodies individually and collectively have developed policies and institutions to address it.[ii] Academics and groups traditionally concerned with economics and security are increasingly researching and considering the topic.[iii] Nongovernmental organizations that have worked on wildlife trafficking for years, if not decades, have also increased their efforts to address this issue. Even public-private partnerships are coming together to consider it.[iv]

The worldwide issue of wildlife trafficking is also finally becoming a topic among the general public. Wildlife trafficking is no longer considered an emerging issue.[47] Following President Obama's Executive Order 13684 on Combating Wildlife Trafficking in July 2013, discussions surrounding wildlife trafficking became more common in the media and subsequently in the general public. More and more frequently wildlife trafficking is recognized as being as significant as transnational organized crimes such as human, drug and weapons trafficking.[48]

PURPOSE OF THIS REPORT

The purpose of this report is to assist the United States in meeting four objectives:[v]

1. ***Analyze the capacity of national wildlife law enforcement agencies regarding detection, deterrence and data collection and analysis.***
2. ***Analyze the effectiveness of existing mechanisms and proposals for enhancing the overall capacity of the government to counter wildlife offenses.***
3. ***Identify current patterns of wildlife offenses.***
4. ***Identify gaps in the existing response to wildlife crimes.***

Chapter 2 reviews the capacity of the U.S. Fish and Wildlife Service (FWS), the agency primarily responsible for enforcing wildlife laws and inspecting wildlife shipments. Chapter 3 examines the effectiveness of existing U.S. mechanisms for combating wildlife trafficking and addresses opportunities for enhancing the capacity of FWS. Chapters 4 and 5 offer in-depth analyses, one general and five genus-specific—that identify current patterns of wildlife trafficking from Latin America. The report concludes with a discussion of the results of the analyses (Chapter 6) and recommendations (Chapter 7).

Responses to the illegal trade in wildlife must reflect the differentiated and shared characteristics of various supply chains.[49] The majority of research and data analysis on wildlife trafficking has focused on Africa and Asia. The analyses of illegal trade from Latin America conducted for this report shows that while trends in wildlife trafficking do share similarities on a global scale, there are also regional nuances that require different approaches,[50] different species and trade routes, for example.

[i] At least two international bodies have dedicated resources to working with legislators, prosecutors and the judiciary as part of their capacity building: The Convention on International Trade in Endangered Species National Legislation Project, and the International Union for the Conservation of Nature World Commission on Environmental Law.

[ii] Examples include the United Nations General Assembly, the United Nations Economic and Social Council, the International Consortium on Combating Wildlife Crime, United for Wildlife, the World Customs Organization, the INTERPOL Wildlife Crime Working Group, United Nations Office on Drugs and Crime Global Programme for Combating Wildlife and Forest Crime, United Nations Environment Programme, the World Bank, and the Convention on International Trade in Endangered Species.

[iii] Examples include the Global Initiative Against Transnational Organized Crime, The Brookings Institution, and Global Financial Integrity.

[iv] Examples include the Coalition Against Wildlife Trafficking (described as a unique voluntary public-private coalition of like-minded governments and organizations partnering in the global fight against illegal wildlife trade).

[v] The objectives are based on the *Wildlife and Forest Crime Analytic Toolkit* published by the United Nations Office on Drugs and Crime in 2012 to provide countries with comprehensive guidance in analyzing the strengths and weaknesses of preventive and criminal justice responses crucial to deterring wildlife and forest crimes on a national and international level. The toolkit was a product of the International Consortium on Combating Wildlife Crime.

2

U.S. Wildlife Law Enforcement Capacity at Ports of Entry

IN THE UNITED STATES, numerous agencies are involved in enforcing wildlife laws in various capacities. The U.S. Fish and Wildlife Service (FWS) Office of Law Enforcement is the primary agency responsible for enforcing wildlife laws, particularly the Convention on International Trade in Endangered Species and the Endangered Species Act. Other agencies involved in enforcing wildlife laws are the National Marine Fisheries Service, the U.S. Environmental Protection Agency, and the Animal and Plant Health Inspection Service (APHIS). For the inspection of wildlife shipments, FWS works in conjunction with the Department of Homeland Security's Customs and Border Protection (CBP) to monitor U.S. border crossings and ports of entry. CBP has primary authority to inspect goods imported into the United States and refers wildlife goods to FWS, the primary authority for inspecting wildlife shipments.

FWS has an incredibly dedicated law enforcement staff, but has consistently lacked adequate funding to support enforcement and inspection. Understanding the current capacity of FWS to detect and deter wildlife trafficking and to collect and analyze data related to wildlife trade is key to making the case for fully funding efforts to curtail trafficking from Latin America to the United States.

CAPACITY FOR DETECTION AND DETERRENCE

FWS employs two kinds of officers: special agents and wildlife inspectors. Special agents are criminal investigators who enforce federal wildlife laws, often working undercover to infiltrate wildlife trafficking rings.[1] While special agents often work weeks and months investigating large criminal activities, wildlife inspectors are the front-line defense against wildlife trafficking.[2] Inspectors are tasked with ensuring that wildlife shipments, both imports and exports, comply with national and international wildlife protection laws.[3] Specifically, wildlife inspectors process declared (i.e. legal) shipments, intercept illegal shipments, conduct proactive enforcement blitzes to catch traffickers and assist special agents in their investigations.[4] The work of these two different types of officers is interdisciplinary and complementary.[i]

The capacity of FWS to detect and deter wildlife crime in the United States is a function of the adequacy of the agency's law enforcement budget, the number of wildlife agents and inspectors, the geographic range these officers must cover, their training and the scope of the problem they are assigned to address. In fiscal year (FY) 2014, FWS had 130 wildlife inspectors and 213 special agents for a total of 343 officers. The 130 wildlife inspectors are only able to inspect wildlife shipments, including both commercial cargo and personal travel goods, at 64 ports of entry.

Eighteen of these ports are "designated," meaning any declared wildlife shipments can enter and wildlife inspectors are stationed there full-time.[5] Forty-six are "nondesignated," meaning declared wildlife shipments can enter only

[i] Although the focus of this report is on the capacity of wildlife inspectors, it is noted that an increase in the number of wildlife inspectors would necessitate a parallel hiring increase in the number of special agents. These two kinds of officers go hand-in-hand; as wildlife inspectors detect more shipments on the front line, special agents can initiate more investigations and make more arrests.

with a special permit. Of these 46 nondesignated ports, 20 are staffed,[ii] meaning wildlife inspectors are there full-time, but a permit is required to import wildlife; 26 are nonstaffed,[iii] meaning no wildlife inspectors are there full-time. When a permit is acquired to import a wildlife shipment through a nondesignated nonstaffed port, a wildlife inspector from another port covers the nonstaffed port.

To put things in perspective, there are 130 wildlife inspectors, but only 38 ports of entry have full-time staff. Meanwhile, there is a total of 328 ports of entry to the United States—and wildlife inspectors only have the capacity to consistently reach 64 of them.[6] While it is understood that these 64 ports process all of the *declared* wildlife shipments entering and exiting the United States, illegal and undeclared wildlife shipments certainly pass through any number of the other 328 ports of entry not under the purview of FWS. Only one-in-five ports of entry are staffed with wildlife inspectors.

Although CBP covers all 328 ports of entry, its officers do not receive the training in identifying wildlife and wildlife products that the wildlife inspectors undergo. While CBP officers do discover illegal wildlife and seek the assistance of wildlife inspectors, they cannot act as equivalent replacements for trained wildlife inspectors. A high level of expertise is required of wildlife inspectors because many endangered species closely resemble more common ones that are legally traded and distinguishing between them may require an expert.[7]

Wildlife inspectors undergo an eight-week training program before participating in "in-service" training by senior inspectors.[8] After this training, inspectors are expected to understand and enforce a range of U.S. and international laws, regulations and treaties that protect wildlife and to be able to identify thousands of different species, both live and as parts or products.[9] In comparison, special agents receive 20 weeks of formal training.[10]

Turning to the size of the task facing wildlife inspectors, an analysis of three different ports of entry, Los Angeles, Calif., Miami, Fla., and El Paso, Tex., provides an overview of the number of shipments inspected and reviewed by wildlife inspectors compared to the number of commercial shipments entering the United States. Los Angeles and Miami are designated ports; El Paso is a nondesignated staffed port.

Wildlife inspectors assigned to the Los Angeles Office are responsible for all wildlife inspection demands at Los Angeles International Airport (LAX), Ontario International Airport, Palm Springs International Airport, Victorville Logistics Airport, several international courier and mail facilities and three ports, including the Port of Los Angeles.[11] Currently, there are between eight and 10 wildlife inspectors, a supervisor and one dog at the Los Angeles office.[12] In FY 2014, inspectors based in Los Angeles inspected 22,238 wildlife imports, making it the number two port in the country for wildlife shipments.[13]

To provide some context for this number, LAX is the sixth busiest airport in the world and the third busiest airport in the United States.[14] It ranks 13th in the world in terms of the amount of air cargo handled. In 2013, LAX processed more than 1.9 million tons of national and international air cargo,[15] and it handles approximately 1,000 cargo flights daily.[16] Notably, FWS reports that air cargo accounts for 82 percent of wildlife shipments imported into Los Angeles.[17] Assuming they are declared wildlife shipments, clearing even these shipments is an enormous task.

The Port of Los Angeles also falls under the responsibility of the Los Angeles Office. The Port of Los Angeles processed 5.5 million international containers in 2013 alone and handles around 3.9 million tons of ocean freight on an annual basis.[18] But again, in 2014 wildlife inspectors were only able to inspect 22,238 shipments in all of the Los Angeles locations combined, accounting for a mere fraction of the trade.[19] Wildlife inspectors may spend most of their time processing commercial cargo shipments, but they also inspect international travelers.[20] At LAX at least one wildlife inspector is assigned to the international passenger terminal on a daily basis, while up to three inspectors handle air cargo.[21] Having even one wildlife inspector daily at each of the locations covered by the Los Angeles Office would thus require at least 11 of the FWS's 130 wildlife inspectors.

Wildlife inspectors assigned to the Miami Office cover Miami International Airport (MIA) and the Port of Miami.[22] Reportedly, there are nine wildlife inspectors and one dog stationed at the Miami Office. These inspectors inspected 6,696 wildlife imports in FY 2014, earning Miami a ranking of sixth among U.S. ports of entry for wildlife shipments.[23] The volume of shipments under the

[ii]Nondesignated staffed ports include Agana, Blaine, Brownsville, Buffalo, Calais, Champlain, Denver, Detroit, Dulles, Dunseith, El Paso, Guaynabo, Laredo, Nogales, Pembina, Port Huron, San Diego, Minneapolis/St. Paul, Sweetgrass and Tampa.

[iii]All other ports are nondesignated nonstaffed.

responsibility of the Miami Office staff is equivalent to that faced by the Los Angeles Office staff. In 2013, importers declared 11,000 international shipments of live wildlife,[24] a number that does not include exports, wildlife parts and products and, least of all, illegal shipments of wildlife. MIA also ranks first in the United States for international air cargo.[25] In 2013, MIA processed more the 1.8 million tons of international air cargo.[26]

El Paso differs from Los Angeles and Miami in that it is a land-border crossing and a nondesignated port. Wildlife inspectors assigned to the El Paso Office are responsible for three border crossings, covering more than 450 miles of border, and El Paso International Airport. Currently, three wildlife inspectors and one supervisor are stationed at the El Paso Office.[27] In FY 2014, the El Paso staff inspected 553 wildlife imports. Twenty-five of the 110 border crossings into the United States are located along the southern border in Arizona, California, New Mexico and Texas.[28] In 2014, the border crossing at El Paso ranked second only to San Ysidro, Calif., in the volume of pedestrian, personal vehicle and truck traffic.[29]

In 2014 alone, 11.5 million personal vehicles, 6.5 million pedestrians, and 750,000 trucks crossed the border in El Paso.[30] Given that El Paso is a nondesignated port, declared wildlife shipments are only allowed importation with a special permit. However, given the volume of traffic at this border crossing and the fact that the movement is over land between the United States and Mexico—the top country of export for illegal wildlife shipments from Latin America—the probability of wildlife trafficking is extremely high.

It is clear from the numbers that wildlife inspectors are overwhelmed and outnumbered by the volume of shipments transiting the United States each year.[31] In FY 2014, out of the millions of shipments into the United States—any number of which contained undeclared, illegal wildlife cargo—a total of 180,463 known wildlife shipments were imported into, exported out of and transited through the United States.[32]

As a general matter, wildlife inspectors do not engage in physical patrol of ports. They mainly review trade declaration forms and physical inspections are triggered by suspicious documentation.[33] Unfortunately, inspectors can examine only about 20 percent of these shipments, partly because out of the 20 percent of shipments inspected, one in three results in law enforcement action.[34] If they only have the capacity to examine one-fifth of the shipments, and one in three of those examinations leads to a wildlife seizure or other related action, it should be obvious that wildlife inspectors are currently presented with a task well beyond their capacity to complete.[35]

The number of FWS enforcement officers has also not kept pace with the growth in wildlife trafficking,[36] which was estimated to be worth $5 billion in the 1990s and is now put as high as $23 billion.[37] Ten years ago, FWS had a force of 95 wildlife inspectors that processed more than 154,000 shipments valued at $1.7 billion.[38] On average, each of these inspectors was responsible for 1,621 inspections. Today, the force stands at 130 inspectors, processing 180,463 shipments valued at $6 billion.[39] Meanwhile, the average number of inspections per inspector has dropped from 1,621 to 1,388. Unfortunately, the capacity of the force has not grown at the same speed as the illegal wildlife trade. Criminals currently enjoy an estimated 90 percent chance of going undiscovered and unprosecuted,[40] and even that is likely an underestimation.

Hand-in-hand with the need for more manpower is the need for better data collection and analysis.[41] Wildlife inspectors can only be as effective as the information they have. While FWS is woefully understaffed to effectively deal with the scope of wildlife trafficking, the efficiency of the current force could be improved with better data analysis and information regarding smuggling operations.

CAPACITY FOR DATA COLLECTION AND ANALYSIS

The United States is one of the only countries that maintains a database of records on all legally imported and exported shipments of wildlife.[42] This database, known as the Law Enforcement Management Information System (LEMIS), also holds records of seizures of illegal wildlife imports and exports and is one of the best—if not the best—wildlife trade databases in the world.[iv] This FWS-managed database is particularly important because wildlife trafficking is a "series crime," which means that individual crimes are committed "repeatedly following a similar pattern of offending, similar modus operandi and *often using similar routes*."[43] By their very nature, "series crimes" allow investigators to gather evidence and data with each incident.[44] The fact that LEMIS has been tracking seizures of illegal wildlife shipments for more than 30 years

[iv] The European Union has the European United Trade in Wildlife Information Exchange (EU-TWIX), although it is less detailed.

makes it ideal for identifying series crimes, such as illegal imports and exports of wildlife.[45]

The level of detail in the LEMIS database shows that FWS has the ability to collect comprehensive data on the movement of wildlife shipments into and out of the United States and is using it. In addition to basic information, such as the date and location of wildlife shipments, LEMIS includes descriptions of the contents of the shipments and notes their source, volume and country of export. The ways this information can be used are numerous and varied, but to fully utilize it, LEMIS data needs to be studied and analyzed.

Unfortunately, it appears that LEMIS information has been analyzed only a handful of times with respect to wildlife trade routes—legal and illegal.[46] With regards to wildlife crime, data and data analysis relating to smuggling routes is often missing or nonexistent.[47] However, even when the data is available as it is through LEMIS, gathering it is not in itself sufficient, and it only shows detected shipments.

Once data is gathered, it is essential that it be analyzed and the conclusions transmitted to the individuals and departments that can make use of it.[48] Trends in the LEMIS data may be apparent to wildlife inspectors on an office-by-office level, but it does not appear that the data is being comprehensively analyzed to assess the effectiveness of the current FWS approach to combating wildlife trafficking nationwide. The LEMIS database is a valuable, available resource that should be used to prove successes and improve efficiency.

Governments are encouraged to be supportive of independent—and potentially critical—research in the field of wildlife crime.[49] Governments that do not collaborate with researchers for fear of criticism actually benefit those engaged in wildlife crime and ultimately hamper national and international efforts to curtail criminal activity.[50] Only by acknowledging the existence of wildlife trafficking and quantifying its scale can the problem be tackled.[51]

Investigations by nongovernmental organizations and reports from the general public need to be integrated into law enforcement responses to wildlife crime.[52] The LEMIS database is an excellent resource for the public and organizations that want to assist FWS in analyzing the vast amount of cataloged information. Independent scholarly research has also been identified as a crucial step in understanding wildlife crimes and can be useful to assist in the analysis of existing policies,[53] such as the National Strategy to Combat Wildlife Trafficking. Analyzing data from the LEMIS database can help identify ways to evaluate the effectiveness of current policies and to identify potential weaknesses within those policies.

Meaningful information and statistics on wildlife trafficking patterns are essential to finding solutions.[54] With that in mind, this report uses information from the LEMIS database to analyze a small, targeted, subset of the data and shares the findings of that analysis.

3

U.S. Mechanisms for Combating Wildlife Trafficking

THERE ARE SEVERAL existing and proposed *domestic* mechanisms for combating wildlife trafficking in the United States. Executive Order 13684 on Combating Wildlife Trafficking (Executive Order), the subsequent National Strategy for Combating Wildlife Trafficking (National Strategy), and the Implementation Plan for the National Strategy for Combating Wildlife Trafficking (Implementation Plan) include mechanisms for enhancing the capacity of FWS and reducing domestic consumer demand for illegal wildlife. It should be noted that the analysis in this section was based on publicly available information regarding the actions and progress made by the government.

President Obama issued the Executive Order on July 1, 2013, to "address the significant effects of wildlife trafficking on the national interests of the United States."[1] The Executive Order instructed executive departments and agencies within the U.S. government to convene a Presidential Task Force on Wildlife Trafficking (Task Force) to develop and implement the National Strategy. Additionally, the Executive Order established the Advisory Council on Wildlife Trafficking (Advisory Council) made up of nongovernmental experts to provide advice and assistance to the Task Force.

On February 11, 2014, the Task Force published the National Strategy, which established three strategic priorities for combating wildlife trafficking: 1) strengthen enforcement; 2) reduce demand for illegally traded wildlife; and 3) expand international cooperation and commitment. Addressing the first two priorities is one of the purposes of this report.

The section of the National Strategy on strengthening enforcement is divided into two subsections, U.S. Domestic Enforcement and Global Enforcement. Similarly, the section on reducing demand is divided into three subparts: raise public awareness; build partnerships to reduce domestic demand; and promote demand-reduction efforts globally. Following the release of the National Strategy, the Task Force and the Advisory Council set about implementing its goals. On February 11, 2015, the Task Force released the Implementation Plan, which details the goals set out by the National Strategy, progress made in achieving them and goals yet to be met. Following the Executive Order, the Implementation Plan was the first comprehensive report made available to the public on actions undertaken by the executive departments and agencies within the United States government to combat wildlife trafficking.

ENHANCING THE ENFORCEMENT CAPACITY OF FWS

Strong enforcement of wildlife protection laws in the United States is essential to stopping wildlife trafficking.[2] Unfortunately, to date the enforcement of wildlife trafficking laws has been modest worldwide.[3] The Executive Order talks about "enhance[ing] domestic efforts to combat wildlife trafficking" generally and "promot[ing] and encourage[ing] the…enforcement by foreign nations" to prohibit wildlife trafficking,[4] concepts developed in more detail in the National Strategy.

The National Strategy contains three strategic priorities to combat wildlife trafficking, which include strengthening enforcement, reducing demand and expanding

international cooperation and commitment. It also has an entire section titled "United States Domestic Enforcement." Specifically, the National Strategy says that the U.S. government will "enhance efforts to curb the illegal flow of wildlife products across and within U.S. borders" and "assess ways to augment the law enforcement capacity of the U.S. Fish and Wildlife Service."[5] Despite specific mention of curbing flow and increasing the law enforcement capacity of FWS in the National Strategy, little effort appears to have been made in either area.

At the end of 2014—11 months after the publication of the National Strategy—the U.S. Department of State released some highlights from implementing the National Strategy, including examples of actions taken to strengthen law enforcement in 2014,[6] but all were actions taken abroad. There were no examples of ways law enforcement was strengthened in the United States in 2014.

The Implementation Plan, released in early 2015, identifies two relevant achievements in strengthening domestic law enforcement capacity since the 2014 release of the National Strategy: 1) U.S. import/export data was made available to all relevant law enforcement agencies for investigative purposes; and 2) new training methods and enhancements of wildlife trafficking enforcement capacity were developed and institutionalized.[7]

Increased information sharing among border patrol agencies certainly enhances the capacity of these agencies, including FWS, to combat wildlife trafficking. In addition, FWS officers have been integrated into the Customs and Border Protection (CBP) Commercial Targeting Analysis Center, thereby allowing the analysis capabilities of the CBP to be applied to wildlife trafficking.[8] No further details on the new training methods for enforcement personnel have been released, but efforts to enhance the quality and effectiveness of the short training period wildlife inspectors undergo are likely to increase their capacity. In addition, any supplemental training in wildlife detection methods for enforcement agencies other than FWS will also be beneficial.

The Implementation Plan notes that wildlife trafficking enforcement capacity has been increased.[9] It is unclear in what capacity, given that the number of wildlife inspectors decreased from 140 in FY 2013 to 130 in FY 2014 and the number of special agents decreased from 222 in FY 2013 to 213 in FY 2014. Since the Implementation Plan was released in 2015, it appears that this increase in capacity is not referring to an increase in the number of FWS officers. The National Strategy, which informed the Implementation Plan, made specific mention of "augmenting the law enforcement capacity of the U.S. Fish and Wildlife Service," but the increase in enforcement capacity referred to in the Implementation Plan is vague at best.[10]

It remains uncertain whether existing and proposed mechanisms have increased the law enforcement capacity of FWS and even whether existing mechanisms have made such outright commitments to increase the ranks of inspectors.[11] It appears the National Strategy intentionally set out to increase the law enforcement capacity of FWS and the Implementation Plan claims that wildlife trafficking enforcement capacity has been increased. However, this is not reflected in the number of FWS officers. In fact, with a decrease in both special agents and wildlife inspectors, one could argue that in actuality the capacity of FWS law enforcement has diminished since the Executive Order was issued. Thus, while existing mechanisms were intended to increase the capacity of FWS law enforcement, it appears that such mechanisms have yet to be successful—at least in terms of the number of officers.

REDUCING U.S. DOMESTIC DEMAND FOR ILLEGAL WILDLIFE

While increasing law enforcement efforts and capacity is vitally important to combating wildlife trafficking, it will have only a limited impact on the illegal trade unless consumer demand for these products is addressed at the same time.[12] Enforcement efforts need to be matched with efforts to increase consumer awareness and reduce demand,[13] because the United States is among the world's top markets for illegal wildlife[14] and is also a transit point for illegal wildlife moving from source countries to markets worldwide.[15]

The Executive Order specifically states that "the United States shall seek to reduce the demand for illegally traded wildlife, both at home and abroad."[16] The Executive Order further stated that the National Strategy "shall include… strategies to reduce illicit trade and reduce consumer demand for trade in protected species."[17] The Executive Order clearly recognizes that efforts to combat wildlife trafficking must include domestic consumer demand reduction.

The National Strategy identified three actions the U.S. government would take to reduce consumer demand for illegal wildlife: 1) raise public awareness and change behavior; 2) build partnerships to reduce domestic demand; and 3) promote demand-reduction efforts globally. The first action appears to be focused both domestically and

globally; the second, only domestically; and the third, only globally. The National Strategy stated that increasing public awareness alone is not enough, so the government would also "target consumption patterns."[18] No explanation of what this action would include is given, although it is clear that it is distinct from actions to raise public awareness.

Presumably, targeting consumption patterns would involve analysis of the types of illegal wildlife products consumers seek and the source of those products. However, a review of the progress detailed under this action in the Implementation Plan makes no mention of achievements in targeting consumption patterns or any plans to do so in the future. All progress points under this heading in the Implementation Plan highlight only actions to raise public awareness,[19] which the National Strategy specifically indicated would not alone be enough to reduce consumer demand. Thus, it does not appear that the Task Force has targeted consumption patterns of illegal wildlife trade as described in the National Strategy.

Examining LEMIS data is one way to identify the consumption patterns of U.S. consumers based on volume, frequency and product descriptions. The analysis of LEMIS data conducted for this report, for example, showed what illegal wildlife products exported from Latin America, Mexico and the Caribbean are in most demand in the United States.

The second action for reducing demand for illegal wildlife identified in the National Strategy stated that the government would "build partnerships to reduce domestic demand," including "strengthen[ing] [government] partnerships with NGOs, civil society groups, private donors, the media, and academia that focus on research and building political will to stop wildlife trafficking…"[20]

Again, this section of the National Strategy has potential to reduce domestic demand by increasing collaborative efforts. However, a review of the Implementation Plan under this action did not indicate the formation of any formal government partnerships with any of the groups listed in the National Strategy—apart from the media.[21] It was not until very recently that the Department of the Interior initiated the formation of the U.S. Wildlife Trafficking Alliance.[22] The Alliance, the first formal partnership of government agencies, the private sector and nongovernmental organizations, took more than two years to form following the issuance of the Executive Order.

The Implementation Plan also noted that consumer demand for targeted species has been reduced, as evidenced by market surveys, seizure data and other measuring sticks.[23] Presumably, seizure data can be used to reflect changes in consumer demand in that a decrease in seizure data indicates a drop in illegal shipments driven by a decrease in consumer demand. However, experts caution against using seizure data as an indicator of a reduction in wildlife crime because it reflects only successful law enforcement efforts.[24] Fewer seizures could be explained by other factors, such as fewer wildlife inspectors or fewer illegal shipments carrying larger volumes of goods making them more difficult to detect—neither of which necessarily correlates with a reduction in consumer demand. Furthermore, the seizure data gathered for this report actually showed that the number of seizures increased between 2012 and 2013. It is unclear how consumer demand is being measured and what indicators have shown a reduction in demand since the publication of the Executive Order.

With regards to reducing domestic consumer demand, it appears that both existing and proposed mechanisms leave a lot of room for progress. Domestic efforts to reduce consumer demand should focus on a variety of illegal wildlife products—particularly products commonly offered for sale alongside legal products, products similar in appearance to legal products and products consumers may be surprised to learn often contain illegal wildlife parts.

The data gathered for this report showed that a large percentage of the illegal products seized were imported for personal use, often in small quantities, indicating that consumer-reduction campaigns should also focus on small-scale consumption. One of the biggest challenges facing efforts aimed at consumers is establishing a way to track successful efforts. This calls for additional research and surveys to ensure that resources are concentrated on the most successful campaigns and the success can be quantified.

MAKING WILDLIFE TRAFFICKING A SERIOUS CRIME

In April 2013, the United States and Peru cosponsored Draft Resolution IV at the United National Commission on Crime Prevention and Criminal Justice (CCPCJ). This resolution encouraged member states to make illicit trafficking in protected species a "serious crime" under the United Nations Convention against Transnational Organized Crime (UNTOC) Article 2(b).[25] Defining wildlife

trafficking as a "serious crime" under the UNTOC would make wildlife trafficking offenses punishable by a minimum of four years in prison.[26] Such a definition would also invoke international cooperation in the form of mutual legal assistance and joint investigations among parties to the UNTOC.[27]

In July 2013, on the recommendation of the CCPCJ, the United Nations Economic and Social Council (ECOSOC) adopted Resolution 2013/40, "Crime prevention and criminal justice responses to illicit trafficking in protected species of wild fauna and flora."[28] This resolution included the exact same language as Draft Resolution IV with regards to "encourag[ing] member states to make illicit trafficking in protected species of wild fauna and flora involving organized criminal groups a serious crime, as defined in article 2, paragraph (b), of the United Nations Convention against Transnational Organized Crime."[29]

In July 2015, the United Nations General Assembly (UNGA) adopted a resolution "call[ing] on" member states, as opposed to "encouraging" them, to make wildlife trafficking a serious crime under the UNTOC.[30] The language in the resolution adopted by the UNGA is stronger than the language found in the ECOSOC resolution and the CCPCJ resolution, although it still falls short of requiring action. However, the fact that the policymaking arm of the largest intergovernmental organization in the world acknowledged that wildlife trafficking should be considered a serious crime is certainly influential.

The United States unfortunately has yet to implement this recommendation and make wildlife trafficking a "serious crime." The Executive Order, which was issued after the CCPCJ draft resolution, makes no specific mention of treating wildlife crime as a "serious crime," even though the United States cosponsored the resolution. The National Strategy does provide that the United States "will treat wildlife trafficking as the serious crime it is and work to ensure that our enforcement efforts adequately protect wildlife resources."[31] The National Strategy additionally stated that the government will "work with Congress to seek legislation that recognizes wildlife trafficking crimes as predicate offenses for money laundering, thus placing wildlife trafficking on equal footing with other serious crimes…"

In August 2014, the White House issued an update on the National Strategy. The update stated that since February, United States efforts in multilateral forums included "working to persuade U.N. member states to treat wildlife trafficking as a 'serious crime' as defined in the U.N. Convention against Transnational Organized Crime."[32] Yet, even though the United States cosponsored the resolution in the CCPCJ in early 2013 and tried to work with Congress in February 2014 to seek legislation that treats wildlife trafficking as a serious crime, there remains no official declaration by the United States that wildlife trafficking is currently being treated as a "serious crime" under the UNTOC definition.

Additionally, wildlife trafficking does not appear to be consistently treated by courts as a "serious crime" in practice[33] and current law imposes maximum sentences on wildlife crimes as opposed to minimum sentences.[34] Along the same lines, there has been no congressional action requiring that wildlife trafficking carry a minimum four-year sentence as the UNTOC definition of a "serious crime" requires.

4

General Trends in the Illegal Wildlife Trade from Latin America

TO IDENTIFY TRENDS in illegal wildlife imports from the Latin American region (Mexico, the Caribbean, Central America and South America) to the United States, 10 years (2004 to 2013) of LEMIS data on seized shipments containing regulated species was analyzed. This analysis focused primarily on the number of shipments seized, rather than the contents, as a way to measure the capacity of wildlife inspectors to detect and deter illegal shipments.

Secondary analyses focused on the volume and contents of the shipments. Because transportation routes vary depending on the source and the destination,[1] examining illegal imports specifically from Latin America provided information on characteristics particular to illegal trade from the region. In addition, the analysis of this specific region uncovered similarities between wildlife trafficking on a global scale and wildlife trafficking from the region. Regional studies that encompass all species listed under the Convention on International Trade in Endangered Species (CITES) are few and far between.[2] Through such studies the species most at risk due to illegal trade in a region can be identified.

METHODOLOGY

The methodology used in this analysis is rather complex because of the level of detail in the data. It is important to understand not only the parameters of what the data contained, but also how the data was broken down for the purposes of this report and the terminology used in analyzing it. It is also necessary to note the inconsistencies within the data and acknowledge that some data may be missing. (See Appendix A for more information about data sorting, detailed category descriptions and known inconsistencies and constraints of the data.)

Data Parameters

The data used as the basis for this report was obtained through two Freedom of Information Act (FOIA) requests filed with the United States Fish and Wildlife Service (FWS). The requests asked for documents pertaining to all seizures of wildlife and wildlife parts or products exported to the United States from the Caribbean, Latin America and Mexico that were, at the time of seizure, listed under CITES and/or the Endangered Species Act (ESA). The two FOIA requests asked for identical information but covered different date ranges. The final response was a data set containing the requested information from January 1, 2003 through October 10, 2014. The data received contained seizures of both flora and fauna and did not include shipments that were abandoned. In total, 6,226 data points were gathered for this report, not all of which were included in the analysis as discussed below.

Data Included in Analysis

The data analyzed for this report was for seizures of fauna and fauna derivatives from January 1, 2004 to December 31, 2013. Any of the 6,226 data points received in response to the two FOIA requests that did not fall into that time period or pertained to seizures of flora was removed. Only data for seizures of CITES- and/or ESA-listed species was requested, but the data received also covered species listed under the Migratory Bird Treaty Act (MBTA), the Wild Bird Conservation Act (WBCA) and the Marine Mammal

Protection Act (MMPA). Therefore, the data parameters of the subsequent analysis were seizures of fauna and fauna derivatives protected under CITES, the ESA, MBTA, WBCA or MMPA, found in shipments exported from Latin America to the United States between 2004 and 2013. The 5,326 data points that fell within these parameters were the data set used in the analysis for this report.

Terminology

A *shipment* refers to any container or group of containers. A *seizure* refers to the seizure of a single shipment. Each shipment can be represented in single or multiple data points referred to as segments. The data for a single shipment is broken down into segments when the contents within the shipments are derived from more than one species or vary in type of product. The 5,326 data points analyzed for this report refer to segments. Each segment may contain any quantity of parts, products, live or dead specimens, which are referred to as *items*, such as skins, meat and eggs (Fig. 1).

It is important to note that the number of shipments and the number of segments do not provide any indication of the quantity of items in trade. For example, one shipment may contain 63 sea turtle shells, one primate skull and one primate skin. This shipment would be represented in the data in three segments containing a total of 65 items. However, even where only one species is involved in a shipment, the shipment can be divided into segments if the items are different. A shipment containing eight caiman-leather shoes (individual shoes, not pairs) and six small caiman-leather products, for example, was divided into two segments even though it contains only one species, simply because the items require different descriptions.

For the purposes of this analysis, the term *wild-sourced* refers to items from unknown sources, items sourced from the wild and items with no source code. The term *captive-sourced* refers to all other sources.

The *date of seizure* refers to the *shipment date*, as opposed to the *disposition date*. Anytime the date of a shipment is referred to, such as in the annual seizure data, the date refers to the shipment date. (See Appendix A.)

FWS key refers to the FWS Office of Law Enforcement Import/Export Key 2015 (See Appendix B). The FWS key contains explanations for all of the codes and terms used in the LEMIS database.

Fig. 1. Terminology of a Shipment

This analysis focused primarily on the number of shipments seized, rather than the contents, as a way to measure the capacity of wildlife inspectors to detect and deter illegal shipments.

Phases of Analysis

The data was analyzed in three phases. The first phase focused on general trends and looked at the data set as a whole to identify patterns and trends in the shipments generally.

The second phase focused on trade in the top-five genus groups identified in the first phase and examined trends that varied depending on species involved.

The third phase focused on drawing conclusions based on the analysis from the first two phases. For this final phase, the findings of the general analysis and the more specified genus group analyses were compared and contrasted and questions raised by the analyses considered.

Throughout all three phases the primary emphasis was on the number of shipments seized, because the overarching purpose of this report is to examine the capacity of wildlife law enforcement to detect and deter illegal wildlife import and understanding the workload is key to this. The items contained within the shipments and the volumes of those items were secondary considerations.

ANALYSIS OF GENERAL TRENDS

The general trends analysis focused on the data for seized shipments. As noted in the methodology discussion, some control numbers appeared as multiple segments within the data if the shipment contained different items. Control number duplicates were removed to get a sense of how many *shipments* rather than segments were seized.

SHIPMENTS

A total of 4,056 individual shipments from Latin America containing 5,326 segments was seized between 2004 and 2013. Of those 4,056 individual shipments, 3,303 represent single segments (Fig. 2). This means that for 3,303 shipments only one species of wildlife and one kind of item were discovered. Thus, in 3,303 instances, one segment was equal to one shipment. However, the remaining 2,023 segments were disbursed among 753 shipments (Fig. 3). Put another way, 753 shipments resulted in 2,023 segments. Shipments resulting in multiple segments produced anywhere from two to 25 segments per shipment.

Fig. 2. Breakdown of Shipments Seized

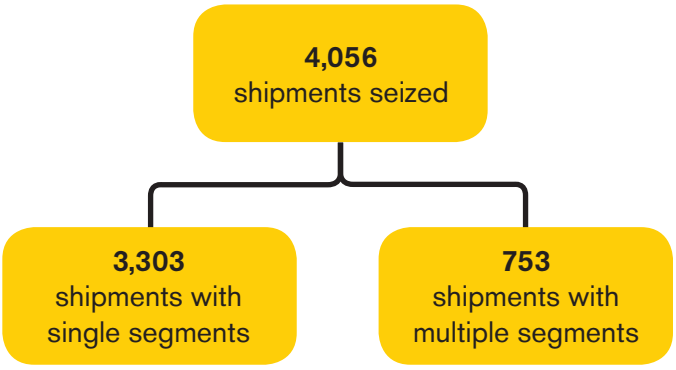
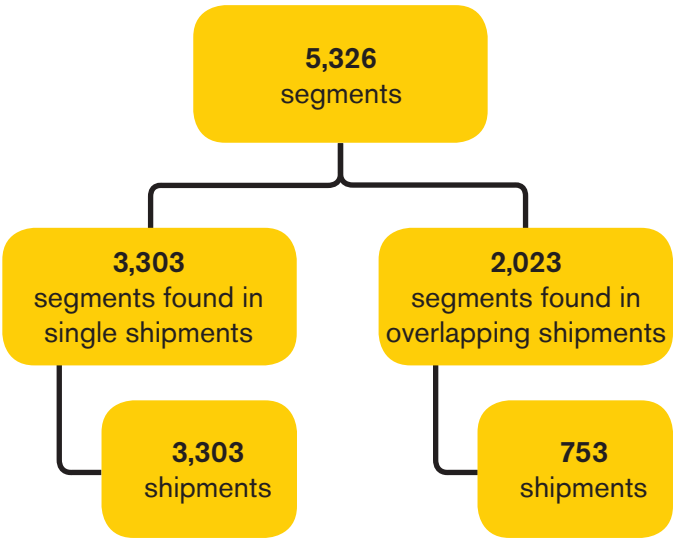


Fig. 3. Breakdown of Segments Seized



The shipment resulting in the most segments (25) was seized in March 2013. The shipment contained feathers from 25 different species of birds, including warblers, flycatchers, robins and water thrushes. Each species triggered a different segment even though all of the items were feathers. Twenty-four of the species were listed under the Migratory Bird Treaty Act (MBTA) and one of the species was listed under the Convention on International Trade in Endangered Species (CITES) Appendix II. Another shipment, resulting in 24 segments, also contained feathers. In that shipment nine different species were identified from 16 genera.

For 13 of the segments the taxonomic information was not known at the species level. However, not all shipments resulting in multiple segments contained items falling under the same wildlife description. For example, one shipment resulting in 10 segments contained black coral, elephant ivory carvings, hawksbill sea turtle jewelry, parrot feathers and clothing made from vicuna.

This analysis indicates that 81.4 percent of all shipments contained only one type of item derived

from one species, and the remaining 18.6 percent of the shipments contained items that varied widely in both description and species.

COMMON TRADE ROUTES

The data was used to analyze the routes the shipments took from the Latin American region to the United States. This involved an analysis of the top-three countries of export and the top-three ports of entry at which the shipments were seized. This analysis identified the top-three trade routes most commonly used by shipments containing illegal wildlife exported from the Region and seized in the United States (Table 3).

First, the data was analyzed by country of export. Shipments were exported to the United States from 43 different countries. Almost half of all the seized shipments were exported from Mexico alone. Haiti, which is not currently a member of CITES, was the second most common country of export.[i] Together, the top three most common countries of export were responsible for exporting 62.1 percent of all shipments of illegal wildlife and wildlife products to the United States (Table 1).

Table 1. Top Countries of Export by Shipment

Rank	Country of Export	Number of Shipments	Percentage Overall
1	Mexico	1,952	48.1%
2	Haiti	333	8.2%
3	El Salvador	239	5.8%

Second, the data was analyzed from the port of entry. Shipments were seized at 47 different ports of entry. These ports of entry included 42 specific port locations. The top three ports of entry were responsible for seizing 53.3 percent of all shipments in the data set (Table 2).

Table 2. Top Ports of Entry by Shipment

Rank	Port of Entry	Number of Shipments	Percentage Overall
1	El Paso, TX	920	22.6%
2	Miami, FL	879	21.6%
3	Houston, TX	369	9.1%

Three top trade routes emerged from this analysis: Mexico to El Paso, Tex.; Haiti to Miami, Fla.; and Mexico to San Diego, Calif. (Table 3). These three routes saw the highest volume of shipments in the data set. The top trade route, Mexico to El Paso, was used by 22.6 percent of all seized shipments, while the second-ranked trade route was used by only 7.8 percent (Table 3). This notable difference in percentage volume between the first-ranked trade route and the second-ranked trade route is mirrored in the genus-level trade routes as well.

Table 3. Top Trade Routes by Shipment

Rank	Country of Export	Port of Entry	Number of Shipments	Percentage of Overall Shipments
1	Mexico	El Paso, TX	919	22.6%
2	Haiti	Miami, FL	318	7.8%
3	Mexico	San Diego, CA	263	6.8%

The trade route from Mexico to El Paso was used by shipments mainly containing items derived from caiman, crocodile and sea turtle. More than 4,797 individual items seized were uncovered in shipments exported from Mexico and seized in El Paso. The trade route from Haiti to Miami was used almost exclusively by shipments containing items derived from queen conch. More than 1,513

[i] It is possible that illegal shipments of wildlife are intentionally routed through Haiti because it is not a member of CITES and therefore enforcement of the trade in wildlife varies more than in other countries in Latin America. See CITES Article X: Trade with States not Party to the Convention.

individual items and 7,890 pounds of meat were uncovered in shipments exported from Haiti and seized in Miami. The trade route from Mexico to San Diego was used by shipments containing a wide variety of items derived from cetaceans, caiman, coral, doves, iguana, macaws, sea cucumber and sea turtles, among other species. More than 4,099 individual items and 1,145 pounds of meat were uncovered in shipments exported from Mexico to San Diego.

Together, the top-three trade routes were used for 37.2 percent of the seized shipments (Table 3). Two of the top-three trade routes used land borders (Mexico to El Paso and Mexico to San Diego). Both of these ports of entry, El Paso and San Diego, are currently listed as nondesignated staffed ports. Shipments using the other top trade route, Haiti to Miami, came by air and by sea. Miami is currently a designated port of entry.

PORTS OF ENTRY

As discussed previously, FWS identifies 64 ports of entry divided into three categories: designated ports, nondesignated staffed ports and nondesignated nonstaffed ports. Overall, shipments coming from the Latin American region were seized at all 18 designated ports of entry during the 10-year span of this data (2,357 shipments or 58.1 percent).[3] Additional shipments were seized at 15 non-designated staffed ports (1,580 shipments, or 38.9 percent).[4] Lastly, shipments were seized at eight nondesignated nonstaffed ports (76 shipments or 1.8 percent).[5] The remaining shipments either contained FWS regions as their ports of entry, or the port code had no corresponding definition in the FWS key.[ii]

Next, the data on seized shipments from Latin America was compared to all imports of wildlife, regardless of export region. Table 4 compares the top-five ports of entry for seizures of wildlife imports from the Latin American region with the top-five ports of entry for all imports of wildlife. This comparison clearly indicates that the ports of entry with the most wildlife imports from the region differ from the ports with most total wildlife imports. While two ports of entry are the same (Miami and Memphis), the other three ports of entry differ. Notably, the top-five ports of entry for all imports are all designated ports.

However, the top-five ports of entry for illegal wildlife shipments exported from Latin America include three designated ports and two nondesignated staffed ports. This indicates two things. First, illegal shipments may not make frequent use of the designated ports. Therefore all 64 ports, whether they are designated for the importation of legal wildlife shipments or not, should be staffed with wildlife inspectors to get a better sense of the flow of illegal shipments. Second, illegal imports from Latin America made frequent use of border ports (El Paso and San Diego/San Ysidro), something not seen as often in imports on the whole. Thus the capacity and efficiency of wildlife

Table 4. Top Ports of Entry: Regional vs. Global

Top Five Ports of Entry 2013
Wildlife Seizures from Latin America

Rank	Port of Entry
1	Miami, FL
2	El Paso, TX
3	San Diego/San Ysidro, CA
4	New York, NY
5	Memphis, TN

Top Five Ports of Entry 2013
All Wildlife Imports

Rank	Port of Entry
1	Los Angeles, CA
2	Newark, NJ
3	Memphis, TN
4	Louisville, KY
5	Miami, FL

[ii]Two entries had the port of entry code "OT," which has no corresponding port description in the FWS Key. Recall that ports of entry recorded using only FWS regions were excluded from the analysis because they were not tied to a specific port of entry.

inspectors at the border ports should be a priority for reducing illegal imports specifically from Latin America.

The presence of Memphis among the top ports of entry may be surprising, but is logically explained by the fact that Memphis is the hub for FedEx Express, a cargo airline known to fly the highest volume of freight tons of any airline in the world.[6] FedEx Express in Memphis processes 1.3 million to 1.5 million packages a day.[7] Similarly, the high rank of Louisville is explained by the fact that Louisville International Airport is home to the United Parcel Service worldwide air hub, Worldport. Worldport processes an average of 1.6 million packages on a daily basis.[8] The Memphis and Louisville airports are major hubs for international shipments and thus top ports of entry for wildlife shipments.

COUNTRIES OF ORIGIN

The analysis of the countries of origin revealed interesting information regarding the truly global nature of wildlife trafficking. The data requested for this report included only shipments of illegal wildlife and wildlife parts exported from Latin America to the United States. Yet, the items uncovered in those shipments originated from 59 different countries worldwide, as well as Antarctica and the High Seas (international waters). Items found in the seized shipments were derived from species native to Asia, Africa, Australia and Europe in addition to North America, Central America, South America and the Caribbean. In total, 54 shipments (1.5 percent of all shipments) and 65 segments involved items that originated outside Latin America. While this is not a significant percentage of the overall shipments, it is important to remember that 22.6 percent of all shipments involved items from unknown countries of origin.

Items found in seized shipments originated from nine countries and territories in Asia. These countries included Indonesia, Malaysia, Vietnam, China, South Korea, Laos, Sri Lanka, Singapore and Thailand. At least 34 shipments involved items originating in Asian countries. Thirteen different species were found in these shipments, including stony coral, European eel, Chinese cobra, mussurana snake, caiman, Sumatra short-tail python, Burmese python, reticulated python, water monitor, snub-nose monkey and Indonesian cobra.

Interestingly, the 13 different species from which items originating in Asia were derived included species that are not native to Asia, such as the common iguana. In this instance, 135 grams of common iguana meat said to have originated in Thailand were exported from Mexico and seized in Los Angeles. The item was recorded as being sourced from the wild. The data in this segment raises a number of questions given that there are no wild common iguanas in Thailand. It is possible that this was a recording error, or that the paperwork accompanying the shipment was purposely falsified. Regardless of where they are native to, all 13 of the species that the items originating in Asia came from are listed under CITES Appendix I or II.

Shipments containing items that originated in Asian countries were seized in 2005 to 2006 and 2008 to 2013. Interestingly, no seizures of items known to have originated from Asian countries were made in 2004 or 2007. Additional seizures of items derived from these same species were found in the data, but the country of origin was indicated as "unknown." Thus, it cannot be said for certain whether the items originated in Asian countries or not.

Items found in seized shipments also originated from six countries in Africa, including Botswana, Kenya, Chad, South Africa, Tanzania and Zimbabwe. At least 14 shipments involved items originating in African countries. Five different species were found in these shipments, including African elephant, hippopotamus, lechwe, Nile monitor, Nile crocodile and southern white rhinoceros. All of these species are listed under CITES Appendix I or II.

Shipments involving items that originated in African countries were found between 2004 and 2009. Additional shipments containing items derived from these five species were seized, but the source of the items was "unknown." These additional seizures could not be counted as seizures containing items that originated in Africa, even though they contained items derived from species native only to Africa.

Seizures also included items that indicated the United States as the country of origin. This means that the items were (legally or illegally) exported out of the United States and then illegally imported back in to the United States. At least 57 shipments contained items that originated in the United States (1.4 percent of all shipments). Twenty-eight different species were found in these shipments, including American crocodile, American alligator, macaws (various species), parakeets (various species), geese (various species), corals (various species), desert tortoise, northern harrier, ducks (various species), hawks, barred owl, bobcat, cockatoo, olive baboon, water monitor and python.

Illegal imports from the Latin American Region contained items that originated in the United States, including items derived from American crocodiles, American alligators, macaws, parakeets, ducks, geese, corals, desert tortoises, water monitors, and pythons.

Some items that originated in the United States were derived from non-native species such as olive baboon, emperor scorpion and python. The olive baboon segment contained six live animals said to have originated from captive facilities in the United States, then exported from Guatemala and seized in Detroit. While the captive facilities explain how a species native to regions in Africa originated in the United States, they do not explain how six live baboons got from the United States to Guatemala before being illegally imported back into the United States. In fact, it is possible the baboons were also trafficked out of the United States, before being trafficked back in.

The emperor scorpion item was also a live animal said to have originated from a wild source in the United States then exported from Mexico and seized in San Diego. However, the emperor scorpion is not native to the United States; it is native to an area of Africa, raising the question of how one could be sourced from the wild in the United States. It is not impossible for a species to be sourced from a country to which is it not native, but this is generally explained through a captive breeding or ranching facility, as in the case of the olive baboons.

In any case, the seized items that originated in the United States were protected under wildlife laws that prohibited or restricted their trade. Seizures containing items that originated in the United States were made throughout the data, from 2004 to 2013. Additional seizures of items derived from these species were noted in the data at large, but the items were not known to have originated in the United States.

Shipments involving items that originated in Russia, Italy, Micronesia, the High Seas and Antarctica also appeared in the data. Species present in these seizures included Russian sturgeon caviar, Antarctic fur seal, whales (various species), sea turtle and coral. However, these seizures were infrequent and occurred only a handful of times throughout the 10-year span of the data.

GENERIC NAMES

The segments were also analyzed by their generic-name category (Table 5). It important to note that the entries in each category were not taken from a set list and were chosen at the discretion of the wildlife inspector who made the seizure.

The data returned 202 different generic names. Generic-name groups were often compiled of multiple species with visual or taxonomic similarities. However, because the generic-name category was provided at the discretion of the wildlife inspector, these names varied greatly and were at times confusing.

Table 5. Top Generic Names by Segment

Rank	Generic Name	Number of Segments	Percentage of Segments
1	Sea Turtle	809	15.1%
2	Conch	750	14.0%
3	Caiman	561	10.5%
4	Crocodile	518	9.7%
5	Iguana	441	8.2%

For example, the generic-name group "all cetaceans" was found in addition to "dolphin" and "whale." There was also the group "parrots" alongside the group "parrots etc." Lastly, there were singular and plural names such as "hawk" and "hawks."[iii] In any case, the generic-name category provided a means of grouping the data that was less precise than on the species level, but revealed broader themes and patterns.

Sea turtle was the most common generic name group with 809 segments and 761 shipments (Table 5). Seizures that included multiple segments included between two and three different kinds of sea turtle items. Of the 809 segments, 668 involved unknown species of sea turtle, equivalent to 82.5 percent of segments with this generic-name category. Likely these segments contained unknown species of sea turtle because either the import declaration form did not include a specific species, or it was not possible for the wildlife inspector to identify the species based on the type of item.

Six known species of sea turtle were also found within this generic name group: loggerhead, hawksbill, green, olive ridley, leatherback and Kemp's ridley. Five genera of sea turtles are found within the *Cheloniidae* family, while one genus, *Dermochelys*, is found in the *Dermochelyidae* family. Thus, this generic-name group contains six different species, from five genera and two families, but these species are generally recognized as "sea turtles."

Queen conch was the second most common generic-name group with 750 segments and 746 shipments (Table 5). Four shipments involved two different types of items, both categorized with the generic name "conch" but differing in other ways. Only one species, *Strombus gigas*, was identified within the generic-name group "conch." In fact, all 750 segments in this generic group were identified as *Strombus gigas*.

Caiman was the third most common generic-name group with 561 segments and 402 shipments (Table 5). Of the 561 segments categorized as "caiman," 112 involved an unknown species of caiman (entered as "species" in the species category and triggered by a question mark in the fourth digit of the species code). These 112 segments are equivalent to 19.9 percent of the segments with this generic name category.

Six known species of caiman were found within this generic name group: common caiman, broad-snouted caiman, dwarf caiman, black caiman, yacare caiman and smooth-fronted caiman. These species are found in the following genera: *Caiman*, *Melanosuchus* and *Paleosuchus*. All three of these genera are found in the *Alligatoridae* family. Thus, for this generic-name group all of the segments fell within one taxonomic family. However, confusingly there were two other generic name groups that included the name caiman: "alligators, caimans," and "caimans, gavials."

Crocodile was the fourth most common generic-name group with 518 segments and 400 shipments (Table 5). Of the 518 segments, 505 involved an unknown species of crocodile, equivalent to 97.4 percent of all segments with the generic name "crocodile." The 13 segments with known species of crocodile included American crocodile, Morelet's crocodile, Nile crocodile, saltwater crocodile and Cuban crocodile.

[iii]The generic name groups that were singular and plural were combined in the initial editing of the data. This is discussed in more detail in Appendix A.

All five of these species fall under the genus *Crocodylus* and the family *Crocodylidae*. Again, much like with the generic name "caiman," there was a second, similar generic name group: "all crocodiles." However, for the segments falling under "all crocodiles," only the taxonomic family was known. Thus, this generic group contained five species from one genus, but all would generally be recognized as "crocodiles."

Iguana was the fifth most common generic-name group with 441 segments and 338 shipments (Table5). The shipments with multiple segments falling under the generic name "iguana" included between two and four different iguana items. Of the 441 segments, 213 involved an unknown species of iguana, equivalent to 48.3 percent of the segments with this generic name.

Five known species of iguana were included in this generic group: Jamaican iguana, rhinoceros iguana, Andros island iguana, common iguana, and Ricord's ground iguana. These five species are found in the genus *Iguana* and the genus *Cyclura*. Both of these genera are found in the family *Iguanidae*. Thus, this generic group contained five species, from two genera, and one family—but all would be generally recognized as "iguanas."

SOURCE OF ITEMS

An overwhelming 95.8 percent of all segments in the data involved items sourced from the wild (Table 6). More than 45,585 items were found within the wild-sourced segments. This is a clear indication that the vast majority of seized wildlife coming from Latin America is taken from wild populations. Wild-sourced segments most frequently originated from wild populations in Mexico. In fact, 1,259 segments, containing more than 11,000 individual items, were sourced from wild populations in Mexico.

Table 6. Top Sources by Segment

Rank	Source	Number of Segments	Percentage of Segments
1	Wild-sourced	5,104	95.80%
2	Captive-sourced	205	3.80%
3	Source Mislabeled*	17	0.30%

The types of captive sources found throughout the data set overall included animals bred in captivity, ranching operations, born in captivity, confiscated, and acquired pre-convention listing, i.e., before the species from which it was derived was listed and protected under CITES.[v]

Captive-sourced items came from captive facilities in 23 countries, including countries outside Latin America. Overall, captive-sourced segments contained more than 8,962 individual items. Colombia produced the most segments containing captive-sourced items (44) representing more than 1,485 items.

WILDLIFE DESCRIPTIONS

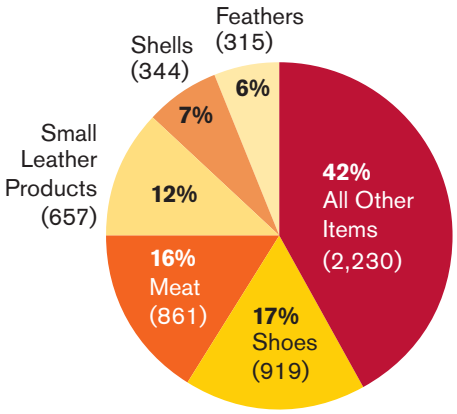
The FWS Import/Export Key (FWS Key) recognizes 94 different descriptions for wildlife items (see Appendix C). Fifty-six of these descriptions were used in the data set. The vast majority of the segments involved items derived from once-live specimens, but 9.5 percent of the segments involved specimens that were live, dead or died during shipment (509 segments). Together, the top-five wildlife descriptions represented 58.1 percent of all segments (Fig. 4).

The description "shoe (including boots)" was used in 17.2 percent of all segments (919 segments) and was the most common description found throughout the data (Fig. 4). The majority of these shoe products were made from various species of caiman (203 segments), crocodile (310 segments), and sea turtle (229 segments). Others were made from pangolins, lizards and pythons.

[v] An item sourced "pre-convention" listing indicates that the item was sourced before the species from which it was derived was listed under CITES – i.e. before the protections provided by CITES applied.

This description, which includes both shoes and boots, is ambiguous with regard to the products that fall under it. For example, it takes far less skin to make a sandal than a knee-high boot, but both are "shoes." This becomes a problem when attempting to estimate the number of individual animals represented by a certain number of shoes or boots. That being said, a total of 5,760 shoes/boots were seized in the time frame of the data set.

Fig. 4. Types of Items Seized by Segment



Meat was the second most common wildlife description used. Some 16.1 percent of all segments consisted of meat (861 segments) (Fig. 4). Almost half of the segments consisting of meat products were derived from queen conch (418 segments/66,994 pounds). Iguana meat was also common (268 segments/944 pounds) and sea turtle meat somewhat less so (107 segments/504 pounds). The volume of meat was recorded using five different unit measurements and had to be converted to pounds. With the conversions it is possible to say that at least 68,841 pounds of meat were seized in the time frame of this dataset.

The description "leather product (small, manufactured including belt, wallet, watchband)" ("small leather product") was used in 657 segments, or 12.3 percent of all segments (Fig. 4). While the FWS Key includes examples of the kinds of products that are included under this description, it is still vague. For example, the amount of leather required to make a watchband is far less than the amount required to make a belt. Additionally, it is unclear whether something like a coin purse or small handbag would fall under this category. The majority of small leather products were made from species of caiman (213 segments/1,989 products) and crocodile (173 segments/1,219 products). In total, 4,793 small leather products were seized in the data set.

The description "shell (mollusk, raw or unworked)" was used in 344 segments, or 6.4 percent of all segments (Fig. 4). This description appears particularly confusing—even with the inclusion of "raw or unworked." From the description provided in the FWS key, it appears that the wildlife description "shell" should be used only for *mollusk* shells, whether the shells are worked or unworked. However, this wildlife description is used in 30 segments to describe *sea turtle* shells.

In fact, a sea turtle is a reptile not a mollusk, and its "shell" is technically known as a carapace. (The FWS key provides a separate and specific description code, CAP, for the "carapace" while the code for shell is SHE). However, the majority of the segments with the description "shell" were appropriately used to describe items derived from queen conch shells (307 segments/3,470 shells). Overall, a total of 3,704 shells were seized in the time frame studied.

Lastly, seizures involving "feathers" made up 5.9 percent of all segments (315 segments) (Fig. 4). The FWS Key did not provide a description or any examples of what a seizure of feathers might include. Thus, loose feathers and feathers as part of a garment could both conceivably be recorded using this wildlife description.

Feathers were generally derived from macaw species (90 segments/1,190 feathers) and hawk species (45 segments/248 feathers). It was also difficult to determine the volume of feathers because the seizures were recorded using both weight measurements and numbers. However, using the number of feathers as the unit measurement, a total of at least 3,238 feathers were seized during this time frame.

While the majority of the seizures involved animal products, it is also important to consider the volume of the trade in live animals, animals that died during shipment, and whole dead animals. At least 4,048 whole dead animals, 505 animals that died during shipment, and 3,063 live animals were seized. These figures indicate that one-in-six live animals died during shipment.

PURPOSE OF IMPORT

The FWS Key recognizes 12 purposes of import (see Appendix C)—seven of which were found in the data in addition to blank entries (Table7). Recall that the purpose of import is taken from the import declaration form and is therefore declared by the importers themselves; the wildlife inspector does not determine the purpose based on the volume or contents of the shipment.

Table 7. Top Purposes of Imports

Rank	Purpose	Number of Segments	Percentage of Segments
1	Personal	3,623	68.20%
2	Commercial	1,390	26.10%
3	Scientific	153	2.80%
4	Hunting Trophies	146	2.70%
5	Blank Entry*	9	0.10%
6	Biomedical Research	2	0.10%
7	Zoos	2	0.10%
8	Circuses	1	0.10%

More than half of the segments (68 percent) were imported for personal purposes (Table 7). Imports declared as "personal" included single segments ranging from 500 caiman skin shoes, to 30 kilograms of queen conch meat, to 175 iguana eggs. Arguably, shipments containing these volumes are not used for personal purposes but for commercial purposes. In fact, the U.S. government presumes that shipments containing eight items or more are for commercial purposes.[9] However, declaring "personal" as the purpose for import on the import declaration form is perhaps a tactic used by traffickers to avoid detection.

Commercial imports made up 26.1 percent of all segments (1,390 segments) (Table 7). Commercial imports included anything from 1,500 queen conch shells to 727 live coral to 462 pounds of dead sea cucumber. There was a distinct inconsistency between what was declared for personal purposes versus what was declared for commercial purposes. As this category is self-reported by the importers, it is not surprising that the entries in this category are not more consistent.

Scientific imports represented 2.8 percent of all segments (153 segments) (Table 7). Scientific imports included birds, amphibians and mammals. Scientific imports were often described using the wildlife description "specimen (scientific or museum)." This wildlife description is found in the FWS Key, but it provided no further information about what sort of parts or products actually constitute a scientific or museum specimen.

Hunting trophies made up 2.7 percent of all segments (146 segments) (Table 7). Segments categorized as hunting trophies commonly involved birds, but both elephant and rhinoceros trophies also appeared in the data. The majority of segments categorized as hunting trophies were exported from Mexico (108 segments/1,439 trophies). In total, 1,628 individual hunting trophies were seized.

The two shipments imported for purposes of biomedical research involved 40 scarlet macaw feathers and 133 short-tusked marmoset "specimens," respectively. These two shipments were seized in 2005 and 2006. No shipments have since been seized that were imported for this purpose. The contents of these shipments raise questions as to the accuracy of the use of the "biomedical research" purpose.

Stunningly, the one shipment imported for the purposes of a circus/traveling exhibition involved

three pounds of queen conch meat. It is unclear how queen conch meat might be displayed in a circus. This declared purpose is likely only explained as mislabeling or the intentional misuse of the "circus" purpose category.

SPECIES CODES

Species codes are meant to include four digits that will generate complete entries for both the genus and species category for every segment. However, as it is difficult and sometimes almost impossible to identify the species from which an item is derived and importers of illegal wildlife shipments cannot be relied upon to be scientifically accurate on the import declaration forms, understandably the species codes vary in accuracy and completeness. In total, 522 different species codes were used in the data. Together, the top-five species codes represent 45.5 percent of all segments (Table 8).

The species code "STIGI" was the most frequently entered species code. This code was used in 14 percent of all segments (750 segments). This is a complete four-digit code and thus generated complete taxonomic information in both the genus and species categories: *Strombus gigas* (queen conch).

Table 8. Top Species Codes

Rank	Species Code	Number of Segments	Percentage of Segments	Taxonomic Name Generated	Common Name
1	STIGI	750	14.0%	*Strombus gigas*	Queen conch
2	CHEL	668	12.5%	*Cheloniidae*	Sea turtles
3	CY0?	505	9.4%	*Crocodylus* species	Crocodiles
4	CAC?	279	5.2%	*Caiman crocodilus*	Common caimans
5	IGUI	224	4.2%	*Iguana iguana*	Common iguanas

The species code "CHEL" was the second most frequently used species code found in 12.5 percent of all segments (668 segments) (Table 8). While "CHEL" is a complete four-digit code, it is an altered code. The taxonomic information generated by the code "CHEL" is the word *Cheloniidae* (sea turtles) in the genus category, but nothing in the species category. In fact, the code "CHEL" actually generates a family level taxonomic identification in the genus category and provides no information as to the actual genus or species. However, even though this code generated altered taxonomic information, it was still the second most frequently used code.

The species code "CY0?" was the third most frequently used species code making up 9.8 percent of all segments (505 segments) (Table 8). Obviously this code is incomplete as the last two digits are placeholders. The first two digits, "CY," are enough to produce correct information at the genus level—*Crocodylus* (crocodiles)—but only the word "*species*" in the species category. Interestingly, the similar code "CY00" produced family-level information at the genus level—*Crocodylidae*—and nothing at the species level. Thus, the change from "CY0?" to "CY00" changed the accuracy of the segment greatly.

The species code "CAC?" was the fourth most commonly used species code and was used in 5.2 percent of all segments (279 segments) (Table 8). Again, this code is incomplete as the last digit is a placeholder. In this case, even though the species code is incomplete in the last digit, the code was still able to produce *both* the genus and species level information—*Caiman crocodilus* (caimans). This can be explained by the fact that because the genus *Caiman* has only one species—*crocodilus*—the species code asks for the subspecies in the fourth digit. There are four subspecies that would have been triggered if the fourth digit was included. However, as entered, this code was still able to provide the genus and species of the segments.

Lastly, the species code "IGUI" was the fifth most commonly used species code and represented 4.2 percent of all segments (224 segments) (Table 8). Like "STIGI," this code is a complete four-digit code that triggered correct information in both the genus and species categories: *Iguana iguana* (common iguana).

SCIENTIFIC NAMES

All 5,326 segments had information entered in the genus category. However, it is known that some of these entries were in fact family-level taxonomic information and even order-level names in some instances. In total, 240 different entries were found in the genus category. The segments that also included species-level taxonomic identification numbered only 2,800. The large percentage of segments missing the species-level identification was due both to a lack of species identification on the import declaration documents provided by the importer and the challenge in identifying the items down to a species level upon seizure. In total, 356 different species were entered in the species category, in addition to the word "species" and blank entries.

Genus level

The top-five entries in the genus category (Table 9) are the same five genera generated by the top-five species codes. However, it is important to note that since the genus-level analysis included all entries beginning with that genus (irrespective of the species) it captured a larger number of segments. This can be seen most clearly in the fact that the top-five genera represent 55 percent of all segments, as opposed to the 45.5 percent of all segments represented by the top-five species codes. Therefore, the top-five genera and the top-five species codes are slightly different.

Strombus was the most frequently entered genus making up 14 percent of all the segments (Table 9). *Strombus* is a genus-level classification that comprises six species. As discussed below, all 750 segments with conch as the genus had *gigas* as the species. All 750 segments also had "conch" as the generic name.

While *Cheloniidae* (sea turtle) was the second most frequently entered genus making up 12.5 percent of all the segments, it is not in fact a genus-level taxonomic classification (Table 9). *Cheloniidae* is a family-level classification of sea turtles that includes five different genera: *Caretta*, *Chelonian*, *Eretmochelys*, *Lepidochelys* and *Natator*. Of the 668 segments with sea turtle entered as the genus, none included species-level identification. All were classified with the generic name "sea turtle."

Caiman was the third most frequently entered genus and made up 10.4 percent of all the segments (Table 9). *Caiman* is indeed a genus-level taxonomic classification and contains three species. Within the 557 segments containing caiman as the genus, all three of those species were identified: *crocodilus*, *latirostris* and *yacare*. Additionally, 166 of the segments simply had *Caiman* "*species*" as the species. All 557 segments had the generic name "caiman."

Table 9. Top Genus Categories by Segment

Rank	Genus	Number of Segments	Percentage of Segments	Common Name
1	*Strombus*	750	14.0%	Conch
2	*Cheloniidae*	668	12.5%	Sea turtles
3	*Caiman*	557	10.4%	Caimans
4	*Crocodylus*	518	9.7%	Crocodiles
5	*Iguana*	437	8.2%	Iguanas

Crocodylus (crocodile) was the fourth most frequently entered genus and made up 9.7 percent of all the segments (Table 9). Crocodile is also a correct genus-level taxonomic classification and contains 11 species. Within the 518 segments containing crocodile as the genus, five species were identified: *acutus*, *moreletii*, *niloticus*, *porosus* and *rhombifer*. Additionally, 505 of the segments simply had crocodile "*species*" as the species. All 518 segments had "crocodile" as the generic name.

Iguana was the fifth most frequently entered genus and made up 8.3 percent of all the segments (Table 9). *Iguana* is a correct genus-level taxonomic classification and contains only one species, *Iguana iguana*. Almost half of the segments (213 segments) did not identify a species and were identified only as *Iguana* "*species*." The other 224 segments identified the species as *Iguana iguana*. All 437 segments had "iguana" entered as the generic name.

Species level

The data available for the species-level analysis was a much smaller subset than that available for the genus-level or the species code analyses. Only 2,800 of the segments (out of the 5,326 segments) contained species-level information (52.5 percent of the overall segments). In total, 356 different species were identified in the data. Combined, the top-five species represented 27.6 percent of all segments (Table 10).

The most common species of wildlife identified in the shipments at a species level was the queen conch (*Strombus gigas*) (Table 10). Queen conch and/or its derivatives were found in 746 different shipments, resulting in 750 segments (some shipments involved two types of queen conch items). The most common kind of queen conch item seized was meat (419 segments/66,994 pounds) followed by queen conch shells (307 segments/3,479 shells). Only three shipments involved live or dead items.

Table 10. Top Species by Segment

Rank	Species	Number of Segments	Percentage of Segments
1	Queen Conch (*Strombus gigas*)	750	14.0%
2	Common Caiman (*Caiman crocodilus*)	365	6.8%
3	Common Iguana (*Iguana iguana*)	224	4.2%
4	Hawksbill Sea Turtle (*Eretmochelys imbricata*)	74	1.3%
5	American Alligator (*Alligator mississippiensis*)	61	1.1%

Shipments involving illegal queen conch and derivatives of queen conch were most frequently exported from Haiti (315 shipments). The majority of shipments involving queen conch were seized in Miami (461 shipments). Also, many of the segments involved queen conch items that originated in Haiti (298 segments). All the segments containing items that originated in Haiti were sourced from the wild.

Overall, 99.4 percent of all segments involving queen conch items were sourced from the wild (746 segments). This indicates that wild queen conch populations are at greatest risk due to illegal trade, particularly wild populations in Haiti.

Three hundred and sixty-five segments contained items derived from common caiman (*Caiman crocodilus*) (Table 10). With regards to seizures involving common caiman, multiple kinds of items were often found within one shipment—anywhere from two to five different kinds of items. A total of 261 shipments involved common caiman, resulting in 365 segments. Shoes were

the most commonly seized kind of caiman item (134 segments/1,440 shoes), followed closely by small leather products (132 segments/1,682 products). Twenty-one shipments involved live or dead animals. Two shipments involved live animals; one contained five animals, the other six, and both were seized in Miami. About half of the shipments involving common caiman were exported from Mexico (189 shipments).

Almost half of the shipments were seized in El Paso (126 shipments). Almost two-thirds of the segments came from unknown countries of origin (223 segments). Overall, 84.9 percent of all segments involving common caiman were sourced from the wild (310 segments). Without a prominent known country of origin, it is difficult to say which populations of common caiman are most at risk due to illegal trade, but captive bred specimens in Columbia (28 segments) and wild specimens in Mexico (43 segments) stand out.

The common iguana (*Iguana iguana*) was the third most common species of wildlife identified in the data, with 224 segments found in 198 shipments (Table 10). All shipments resulting in multiple segments had only two different types of items. The most frequently seized iguana items were meat (132 segments/477 pounds) followed by eggs (47 segments/1,479 eggs). Thirty-one shipments involved live or dead iguanas. Over half of the shipments (61.1 percent) were exported from Mexico (122 shipments).

Los Angeles was the most common port of seizure with 78 shipments seized at that port (39.3 percent). Over half of the segments (57.1 percent) involved items that originated from Mexico (128 segments). Of the items originating in Mexico, 99.2 percent were sourced from the wild (127 segments). Overall, 99.1 percent of all the common iguana segments contained items sourced from the wild. These numbers indicate that wild populations of common iguana are most at risk due to illegal trade, particularly wild populations in Mexico.

The hawksbill sea turtle (*Eretmochelys imbricata*) was the fourth most identified species of wildlife in the data, with 74 segments found in 74 shipments (Table 10). No shipments involved multiple hawksbill sea turtle segments. The most frequently seized kinds of hawksbill specimens were carapaces (23 segments/120 carapaces)[vi] followed by dead animals (18 segments/18 animals). No live hawksbills were seized.

The Dominican Republic was the most common exporting country and was responsible for exporting 26 shipments involving hawksbills (35.1 percent of all hawksbill shipments). San Juan and Miami were tied for the most common port of entry, each with 17 shipments seized (22.9 percent of hawksbill shipments). The Dominican Republic was also the most common country of origin for the hawksbill items (19 segments contained items that originated there). Interestingly, 11 of the 18 dead animals originated in the Dominican Republic.

Of all the segments containing items that originated in the Dominican Republic, 84.1 percent were sourced from the wild. Overall, 97.3 percent of all hawksbill segments were sourced from the wild (72 segments). This analysis indicates that wild populations of hawksbill sea turtles are most at risk due to illegal trade, particularly wild populations in the Dominican Republic.

With 61 segments, the American alligator (*Alligator mississippiensis*) was the fifth most commonly identified species of wildlife (Table 10). These 61 segments were found in 53 shipments. Shipments involving multiple segments for American alligator ranged from two to three segments per shipment. The most frequently seized American alligator items were small leather products (44 segments/770 products) followed by shoes (11 segments/490 shoes). Mexico was the most common exporting country, responsible for exporting 25 shipments (47.1 percent of American alligator shipments). Memphis was the most common port of seizure with 18 shipments seized there (33.9 percent of all American alligator shipments). The United States was the most common country of

[vi] This number includes the wildlife descriptions for "carapace" as well as "shell." As discussed previously, it is highly likely that the entries under "shell" are meant to indicate a sea turtle's carapace. Thus, the two entries were counted together.

origin with 60.6 percent of all segments containing items of U.S. origin (37 segments). Of those items that originated in the United States, 70.2 percent were sourced from the wild (26 segments). Overall, 80.3 percent of the segments were sourced from the wild (49 segments). These numbers indicate that wild populations of American alligator are most targeted for wildlife trafficking as compared to captive-sourced populations.

LISTING STATUS OF SPECIES INVOLVED

Only information on seizures containing species listed under CITES and the ESA was requested for this report, but the data received also included the listing status of the species under the Migratory Bird Treaty Act (MBTA), the Wild Bird Conservation Act (WBCA), and the Marine Mammal Protection Act (MMPA) (Table 11). Some of the species involved in each segment are listed under more than one of these laws; the hawksbill sea turtle, for example, is listed under CITES Appendix I and as endangered under the ESA. In total, 270 segments fell outside the parameters of the original requested data (i.e. involved species not listed in CITES or the ESA) and contained species listed only under the MBTA or the MMPA.

Table 11. Breakdown of Listing Statuses by Segment

Rank	Convention	Number of Segments	Percentage of Segments
1	CITES	5,048	94.7%
2	ESA	1,513	24.8%
3	MBTA	369	6.9%
4	WBCA	358	6.7%
5	MMPA	241	4.5%

CITES

Given that CITES is a multi-lateral environmental agreement covering some 5,592 species of fauna and specifically addressing the trade in those species, it was not surprising that 94.7 percent of all segments involved species listed in one of the three CITES Appendices. Table 12 shows the distribution of species currently listed in each of the Appendices. Interestingly, the percentage of segments containing CITES-listed species mirrored the distribution of species in each Appendix: most of the segments contained species listed in Appendix II, far fewer Appendix I species and even less Appendix III species. In total, the data set contained 276 CITES-listed species (Tables 12, 13).

Table 12. Distribution of All CITES-Listed Species

CITES Appendix	Total Number of Fauna Species Listed	Percentage of Species
Appendix I	630	11.2%
Appendix II	4,827	86.3%
Appendix III	135	2.4%

What the data on CITES-listed species revealed was of great concern. At least 20 percent of all segments involved species listed under Appendix I, which bans commercial shipments (Table 13). Thus, in the 10 years between 2004 and 2013, one-in-five seized segments involved a species—or items derived from a species—facing extinction on an

Table 13. Distribution of CITES-Listed Species Found in Data

CITES Appendix	Number of Segments	Number of Species	Percentage of Segments
Appendix I	1,067	52	20.0%
Appendix II	3,859	191	72.4%
Appendix III	122	33	2.2%
Non-CITES	278		5.2%

international scale. For example, one of the top-five most commonly identified species in all the segments, the hawksbill sea turtle, is listed in Appendix I of CITES. Other Appendix I species found in the shipments included scarlet macaw, blue whale, jaguar, ocelot and totoaba.

Species listed in Appendix II of CITES were even more common than those listed in Appendix I. The 3,859 segments involving species listed under Appendix II make up 72.4 percent of all segments (Table 13). Species listed under Appendix II of CITES are not necessarily threatened with extinction, but may be threatened if trade is not sustainable.[10] Four of the top-five most commonly identified species in all the segments are listed in Appendix II: queen conch, common caiman, common iguana and American alligator. Other species found in the shipments that are listed in Appendix II included coral, blue-and-yellow macaw, three-striped poison-arrow frog and tegu.

While trade is permissible under Appendix II with export permits and nondetriment findings, the abundance of illegal trade in these species found in the data analyzed is precisely what an Appendix II listing is meant to prevent. Continued illegal trade in Appendix II species could result in trade sanctions through the mechanisms set by CITES.

What the data on CITES-listed species revealed was of great concern. At least 20 percent of all segments involved species listed under Appendix I, which bans commercial shipments (Table 13). Thus, in the 10 years between 2004 and 2013, one-in-five seized segments involved a species—or items derived from a species—facing extinction on an international scale.

The 122 segments involving species listed in Appendix III made up only 2.2 percent of all segments (Table 13). It is likely that this number is lower than the other two appendices simply because fewer species are listed in Appendix III. Appendix III species are listed unilaterally on the request of a range state. Some Appendix III listed species found in the shipments included kinkajou, sea cucumber, green-winged teal, scalloped hammerhead shark and blackbuck antelope. A number of these species were listed in Appendix III at the request of Latin American countries. For example, the brown sea cucumber was listed at the request of Ecuador in 2003. And the scalloped hammerhead shark was originally listed in Appendix III by Costa Rica in 2012. (It was uplisted to Appendix II in 2013.)

The 278 segments that did not have CITES-listed species had species listed under the ESA (eight segments), the MBTA (247 segments) and the MMPA (26 segments). Some of these segments were listed multiple times.

ESA

Over one-fourth of all segments (28.4 percent) involved species listed under the ESA (1,513 segments) (Table 14). A closer look at the specific listing status of the species found in these illegal shipments provided additional information.

The 260 segments containing species listed as endangered under the ESA contained species that are listed as endangered throughout their range (Table 14). These 260 segments contained 40

Table 14. Breakdown of ESA Listing Statuses

ESA Listing Status	Number of Segments	Number of Species	Number of Genera	Percentage of ESA segments
Endangered	260	40	33	17.1%
Threatened	276	23	20	18.2%
Both	977	3	7	64.5%

different endangered species, including jaguar, ocelot, Central American river turtle, sperm whale, American crocodile, Andean condor and Mexican bobcat. These segments also contained 33 different genera.

The 276 segments containing species listed as threatened under the ESA contained species that are listed as threatened throughout their range (Table 14). These 260 segments contained 23 different threatened species, including American alligator, African elephant, vicuna, polar bear, bald eagle and Nile crocodile.[vii] These segments also contained 20 different genera.

The remaining 977 segments with ESA listing status contained species that are listed as endangered and threatened depending on populations segments (Table 14). It is likely that these segments were listed as "both," because it is often very difficult to determine the population segment from which an item comes. Thus, while it was known that these species are listed under the ESA, it was not known whether their status was endangered or threatened.

Interestingly, though the ESA category had the highest number of segments, only three different species were revealed in those segments: common caiman, green sea turtle and leopard. However, as noted, only 52.5 percent of all segments contained information down to a species level. Thus, these 977 segments also warranted a look at the genus-level information to get a better sense of what taxa were present. While only three species were present in these segments, they contained seven genera. A large percentage (68.3 percent) of the segments listed as "both" had sea turtle (*Cheloniidae*) in the genus category, but no information in the species category (668 segments). However, since all sea turtle species within the *Cheloniidae* family are listed under the ESA as either endangered or threatened, all segments containing *Cheloniidae* as part of their taxonomic information were listed as "both." Another 17 segments contained elephant (*Elephantidae)* in the genus category and no information in the species category. Again, because all elephant species are listed under the ESA as either endangered or threatened, these segments were listed as "both."

Almost all the segments containing ESA-listed species were also species listed under CITES. In fact 99.4 percent of all segments containing species listed under the ESA at time of seizure were also species listed under CITES (1,505 segments). The eight segments with ESA-only listed species contained arroyo toad, black abalone, yaqui catfish, wood stork, brown pelican and Galapagos penguin.

MBTA, WBCA and MMPA

The data set obtained included some segments containing species listed *only* under either the MBTA, WBCA or MMPA in addition to segments listed under *both* CITES and/or the ESA and these regulations (Table 15). In relevant part, the MBTA is a federal prohibition on the trade of migratory birds; the WBCA regulates trade in exotic bird species; and the MMPA prohibits the "take" of marine mammals both in U.S. waters and by U.S. citizens.

With these three laws (MBTA, WBCA and MMPA), cross listing with CITES and the ESA was significant. However, the data returned also contained 270 segments involving species listed only under the MBTA or the MMPA. Those 270 segments are discussed here, along with all segments containing cross-listed species.

A smaller portion of the segments (6.9 percent, or 369 segments) involved species listed under the MBTA (Table 15). Almost two-thirds (60.7 percent) of the segments with species listed under the MBTA contained species *only* listed under the MBTA and not other laws (244 segments). Some examples of the MBTA-only listed species are: blue-winged teal, white-cheeked pintail, mourning dove, ringed kingfisher and turkey vulture.

[vii] Recall that the data analyzed was for seizures between 2003 to 2013 and this covers only species *listed at the time of seizure.*

Another one-third of the segments (33 percent) contained species listed under both the MBTA and CITES (122 segments). Some examples of the species listed under both the MBTA and CITES include golden eagle, red-tailed hawk and violet-crowned hummingbird. Six segments contained species listed under both the MBTA and the ESA. The species dual-listed under the MBTA and the ESA were brown pelican, bald eagle, wood stork and Mexican spotted owl. Five segments contained species listed under both the MBTA and the WBCA. The species dual-listed under the MBTA and the WBCA were all hawk species.

Table 15. Listing Status in Animal-Specific Regulations

Regulation	Number of Segments	Percentage of Segments
MBTA	369	6.9%
WBCA	358	6.7%
MMPA	241	4.5%

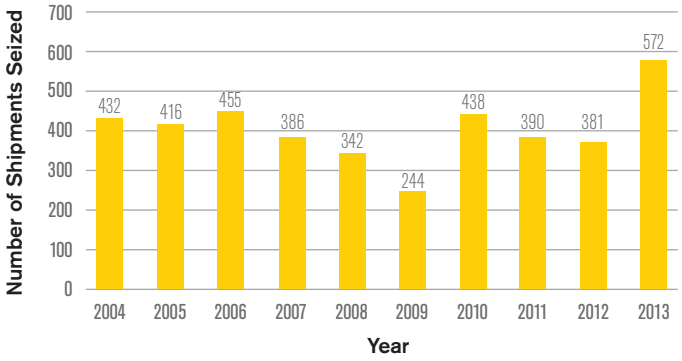
A similar number of segments (358 segments) involved species listed under the WBCA (Table 15). These segments amounted to 6.7 percent of all segments. Like the MBTA, this statute only covers birds. None of the segments that contained species listed under the WBCA contained species *only* listed under the WBCA. In fact, all 358 segments contained species listed under both the WBCA and CITES. Fifteen segments contained species listed under the WBCA, CITES and the ESA. The species in these segments were Andean condor and harpy eagle. Five segments contained species listed under the WBCA, CITES and the MBTA. The species in these segments were all species of hawk.

Lastly, 4.5 percent of all segments involved species listed under the MMPA (241 segments) (Table 15). Twenty-six segments contained species listed *only* under the MMPA. The species in these 26 segments were sea lions and seals. Almost all of the segments (89.2 percent) contained species listed under both the MMPA and under CITES (215 segments). Some of the species in these 215 segments were spotted dolphin, pilot whale, humpback whale, Guadalupe fur seal and polar bear. Twenty-eight segments contained species listed under both the MMPA and the ESA, such as baleen whale, blue whale and killer whale.

TRENDS OVER TIME

In the 10 years from 2004 to 2013, the annual number of seized wildlife shipments from Latin America ranged from 244 to 572 (Fig.5). The average number of shipments seized in this time frame was 405.6 shipments per year. With a well-above-average total of 572 seized shipments, 2013 had the highest number of seizures. With only 244 seized shipments, 2009 saw the lowest number of seizures.

Fig. 5. All Seizures 2004–2013



Looking at the number of shipments seized per month provided even more detail. In the 10 years from 2004 to 2013, the average number of monthly seizures ranged from 29 to 38.8. On average, March saw the highest average number of shipments seized (38.8 seizures) followed by July (37.9 seizures). October saw the lowest average number of shipments seized (29 seizures) followed by February (29.9 seizures). In terms of absolute numbers, the number of seized shipments per month ranged from a low of 12 in April 2009 to a high of 61 in July 2013.

5

Trends in the Trade of the Most Commonly Trafficked Wildlife

A MORE DETAILED ANALYSIS of trade in the top-five genera identified in the analysis of seized shipment data done for the first phase (Table 16), revealed patterns regarding specific products, trade routes, time periods and species.

After the top-five genera, the number of segments per genus fell significantly. Whereas *Iguana* had 437 segments, *Python*, the next most common genera, had only 133. Using the top-five genera as a means to organize the data for this more detailed level of analysis provided an appropriate subset of data from which to draw patterns and trends. Note that one label used in the top-five genera, *Cheloniidae* (sea turtle), is not actually a genus but a family-level taxonomic classification. However, *Cheloniidae* was the second most frequently entered term in the genus category and thus is treated as such for the purposes of organizing the data for the genus-level analysis. Together, the top-five genera represented 54.8 percent of all segments (Table 16).

Table 16. Top Genus Categories

Rank	Genus	Number of Segments	Percentage overall
1	Conch *(Strombus)*	750	14.0%
2	Sea turtle *(Cheloniidae)*	668	12.5%
3	Caiman *(Caiman)*	557	10.4%
4	Crocodile *(Crocodylus)*	518	9.7%
5	Iguana *(Iguana)*	437	8.2%

ANALYSIS: THE TRADE IN TOP GENUS CATEGORIES

CONCH

Strombus was the most commonly recorded genus. Segments with the genus *Strombus* represented 14 percent of all segments (Table 16). All segments with the genus *Strombus* were of the species *gigas*—commonly known as queen conch[i]. In addition, queen conch was the most frequently identified species within the data and the most commonly generated taxonomic classification from the species code "STIGI."

[i]Because all segments with the genus *Strombus* are also *Strombus gigas*, the terms "*Strombus*," "*Strombus gigas*," and "queen conch" are used interchangeably.

Trade routes

The 750 segments involving queen conch were the result of 746 shipments. Only four shipments produced more than one segment for queen conch, and all four of those shipments produced exactly two segments.

The data showed that shipments involving queen conch were exported from 25 different countries. Alone, Haiti was responsible for exporting 42.2 percent of all seized shipments containing queen conch items. Together, the top-three countries of export, Haiti, the Bahamas and Honduras, were responsible for exporting 62.4 percent of the shipments seized that contained queen conch items (467 shipments) (Table 17).

Table 17. Top Countries of Export for Conch Shipments

Rank	Country of Export	Number of Shipments	Percentage of Conch Shipments
1	Haiti	315	42.2%
2	Bahamas	85	11.3%
3	Honduras	67	8.9%

Next, the segments were analyzed by the port of entry. The data showed shipments involving queen conch were seized at 22 ports. Alone, Miami was responsible for 61.9 percent of all seizures of queen conch. Together, the top-three ports of entry made 84.2 percent of all seizures of queen conch. Miami seized shipments containing queen conch most frequently (Table 18).

Table 18. Top Ports of Entry for Conch Shipments

Rank	Port of Entry	Number of Shipments	Percentage of Conch Shipments
1	Miami, FL	462	61.9%
2	San Juan, PR	91	12.2%
3	Houston, TX	76	10.1%

This analysis identified the three trade routes used most frequently by seized shipments containing queen conch: Haiti to Miami, the Bahamas to Miami, and Honduras to Houston (Table 19). The top-ranked trade route, Haiti to Miami, saw a much higher percentage of the shipments than the other two routes. In fact, there was a large gap in percentage between the first-ranked trade route (40.70 percent) and second-ranked route (9.20 percent) (Table 19).

The shipments seized that used the route from Haiti to Miami contained meat, shells and shell products. In total, the seizures on this route revealed 844 pounds of meat and 417 individual items. Shipments that used the route from the Bahamas to Miami contained mainly meat, but also shells, shell products and dead animals. A total of 21,827 pounds of meat and 719 individual items were uncovered in these shipments. Interestingly, although fewer shipments that used this route were seized, the contents of the shipments were much greater in volume than the shipments seized in Miami but exported from Haiti.

Lastly, shipments that used the route from Honduras to Houston contained meat, shells and soup. A total of 16 pounds of meat and 88 individual items were uncovered in these shipments. In the case of queen conch, because there is little variation in the types of items in trade, all three trade routes seemed to contain a mix of products. However, it does appear that the trade route from the Bahamas to Miami is used by shipments of commercial-level contents, as opposed to the other two trade routes, which see smaller volumes in terms of the contents.

Miami appeared twice as the port of entry in the top-three trade routes. No other country of export or port of entry was duplicated in the top-three trade routes. Both the top-two trade routes, Haiti to Miami and the Bahamas to Miami, utilized a port of entry accessible by air and sea. Miami is a designated port. The third-ranked trade route, Honduras to Houston, used a port of entry only accessible by air. Houston is also a designated port (Table 19).

Table 19. Top Trade Routes for Conch Shipments

Rank	Country of Export	Port of Entry	Number of Shipments	Percentage of Conch Shipments
1	Haiti	Miami, FL	304	40.7%
2	Bahamas	Miami, FL	69	9.2%
3	Honduras	Houston, TX	55	7.3%

Species code/species/listing status

The segments for the genus *Strombus* were some of the only ones for which the species code and species was the same for every single segment. In this case, the species code entered was "STIGI." As this is a proper four-digit code, it generated accurate and complete information in the genus and species category: *Strombus gigas* (queen conch). No other species within the genus *Strombus* were identified, and in no segments was the species left unidentified.

Strombus gigas, or queen conch, has been listed in CITES Appendix II since 1992. This species can be found in 35 countries and territories, mainly in Latin America and the Caribbean and also in Mexico. Since 2003, CITES recommended that both the Dominican Republic and Honduras cease exports of all queen conch specimens until further notice. In addition, in 2003, CITES asked all members to suspend the importation of queen conch from Haiti.[1] These trade suspensions are still in effect, although queen conch continues to be available from other countries.[2] In addition, Nicaragua has an export quota in queen conch under CITES.[3] In 2012, the queen conch was a candidate for listing under the ESA.[4] However, in 2014 the National Marine Fisheries Service ultimately found that the species did not warrant listing.[5]

Items by country of origin

The country of origin data indicates the country from which the item came. In the case of queen conch, the items originated from 23 different countries. Given that the country of origin mirrored the country of export in the data set 71.2 percent of the time, it is not surprising that in the case of queen conch the top-three countries of origin are identical to the top-three countries of export (Tables 17, 20). The segments containing queen conch items are special, because the most common country of origin is a known country—for other genera the most common country of origin was not known.

Haiti was the most common country of origin for segments containing queen conch items (see Table 20). Two hundred-ninety-seven segments contained items that originated in Haiti and were also exported from Haiti. The one remaining segment involved an item that originated in Haiti but was exported from Grenada.

The Bahamas was the second most common country of origin for queen conch segments (Table 20). All but two of the segments involved items that originated in the Bahamas and were also exported from the Bahamas—the other two segments contained items that were exported from Panama and Mexico.

Lastly, Honduras was the third most common country of origin for queen conch segments (Table 20). All of the 68 segments that contained items that originated in Honduras were also exported from Honduras.

Table 20. Top Countries of Origin for Conch Segments

Rank	Country of Origin	Number of Segments	Percentage of Conch Segments
1	Haiti	298	39.7%
2	Bahamas	81	10.8%
3	Honduras	68	9.0%

Source of items

Queen conch items sourced from the wild were the most common (Table 21). Items sourced from the wild came from wild populations in 23 different countries. The 746 segments involving items sourced from the wild contained 2,541 individual items and 67,053 pounds of meat.

A closer look at these items indicates that 298 of the segments were taken from wild populations in Haiti, and represent 405 individual items and 820 pounds of meat. This indicates that 39.7 percent of all queen conch segments were sourced from wild populations in Haiti. Another 81 segments contained items sourced from wild populations in the Bahamas. These seizures represented 985 individual items and 21,370 pounds of meat. Interestingly, while fewer segments contained items sourced from wild populations in the Bahamas than in Haiti, the contents of the segments revealed that the volume of items sourced from wild populations in the Bahamas is actually much greater.

Table 21. Source of Conch Segments

Rank	Source	Number of Segments	Percentage of Conch Segments
1	Wild-sourced	746	99.4%
2	Captive-sourced	4	0.6%

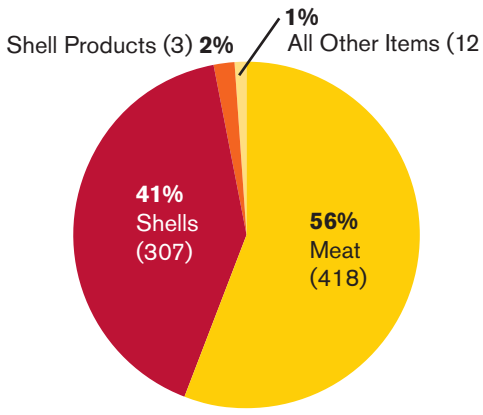
The four segments that contained captive-sourced items were from captivity in Turks and Caicos and Honduras (two segments each) (Table 21).[6] These segments from captive sources contained a total of 1,700 queen conch shells, while the segments from captive sources in Honduras consisted of two pounds of soup and four pounds of meat.

Wildlife descriptions

Seized items derived from queen conch were reported using eight different wildlife descriptions. Generally, queen conch items were parts, products and derivatives. Only three seizures involved live or dead animals. This indicates that queen conch is illegally traded mostly for its byproducts and not as live specimens.

The most commonly seized type of queen conch item was meat (Fig. 6). Alone, seizures of meat were found in over half the segments. Meat items were recorded using four different kinds of unit measurements. This lack of a uniform recording process made it difficult to compare the volume of meat without converting units. Three of the unit measurements were in weight (grams, kilograms or pounds) and one measurement was based on the number of specimens, although it is unclear how the number of "meats" was counted. All weight measurements were converted to pounds to facilitate a direct volume comparison. Seizures of queen conch meat ranged from a fraction of one pound to 40,000 pounds in one shipment, with the average being 165 pounds. It is also of note that the majority of shipments involving meat (325 shipments) were seized in Miami. Seizures of meat were made every year from 2004 to 2013.

Fig. 6. Types of Conch Items by Segment



The second most common description used was "shell (mollusk, raw or unworked)" ("shell") (Fig. 6). This description was used in 307 segments. Shell items were all recorded using the same unit measurement: number of specimens. Seizures of queen conch shells ranged from one to 1,500

individual specimens in any one shipment with the average being 11 shells. Over one-third of the shipments containing shells were seized in Miami (127 shipments). Seizures of shells were made every year from 2004 to 2013.

After meat and shells, which together made up 96.6 percent of queen conch segments, queen conch shell products came in a very distant third with 13 segments (Fig. 6). All but one shell product segment was recorded using the number of specimens as the unit measurement. The remaining segment was recorded in pounds. The number of specimens ranged from one to 122, with 15 shells being the average. Seizures of shell products were made every year from 2004 to 2013, except 2010.

Purpose of import

Four different purposes of import were identified in the queen conch segments (Table 22). Imports for personal purposes were the clear majority. The 610 segments imported for personal purposes contained 1,069 individual items and 1,868 pounds. Contents of personal imports included items such as 200 queen conch shells and 66 pounds of meat. Again, as the purpose of the import is declared by the *importer,* it is subject to scrutiny.

Table 22. Purpose of Conch Imports by Segment

Rank	Purpose of Import	Number of Segments	Percentage of Conch Segments
1	Personal	610	81.3%
2	Commercial	137	18.2%
3	Scientific	2	0.2%
4	Circuses/Exhibitions	1	0.1%

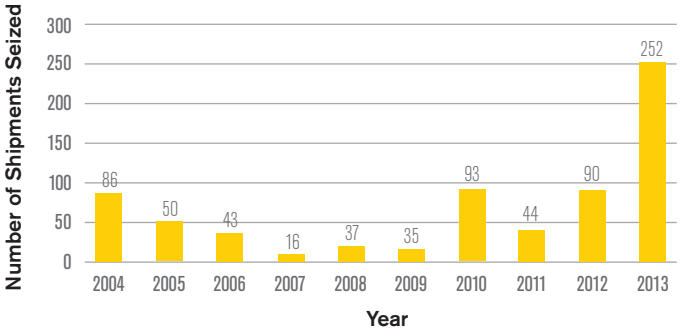
Presuming that shipments containing eight items or more are for commercial use, only 515 queen conch segments truly contained a personal-purpose volume of items.[7] Imports for commercial purposes were a distant second (Table 22). However, the 137 segments imported for commercial purposes contained 3,169 individual items and 65,188 pounds. This provides the most obvious example of the volume of commercial imports as compared to personal imports. Here, although commercial segments are outnumbered four-to-one by personal segments, the commercial segments contain exponentially more items and pounds than the personal segments. Some of these shipments, such as one involving 40,000 pounds of queen conch meat, were clearly of commercial volume. However, others, such as a single queen conch shell, did not seem to be of commercial volume.

The two imports made for scientific purposes involved two queen conch shells and one "specimen." As noted in the general discussion of purpose of import, the only import made for the purposes of a circus or traveling exhibition in the entire data set involved queen conch meat. This is perhaps the best example of how an importer has complete control over the import declaration form.

Trends over time

Seized shipments involving queen conch items occurred every year from 2004 to 2013 (Fig. 7). Seizures fluctuated greatly—from as few as 16 annually to as many as 252. The average number of annual seizures was 75. In four different years (2004, 2010, 2012 and 2013), the annual number of seizures exceeded the average, spiking significantly in 2013 to 252 seizures (Fig. 7).

Fig. 7. Seizures Containing Conch Items 2004-2013



On a monthly basis, the average number of seizures ranged from 3.9 to 8.2. On average, the lowest number of seizures was made in February (3.9 seizures) and January (4.6 seizures), while May had the highest (8.2 seizures) followed by July (7.7 seizures). Eight months saw no seizures of queen conch at all (February 2004, June and August 2006, March, July and December 2007, September 2008 and January 2012). The highest absolute number of seizures seized in one month was 32 in August of 2013, followed by June 2013 with 28 seizures.

SEA TURTLES

The family *Cheloniidae*[ii] (sea turtles) was the second most commonly recorded entry in the genus category with 668 segments. Segments with *Cheloniidae* in the genus category represented 12.5 percent of all segments (Table 5).

The family *Cheloniidae* contains two subfamilies, five genera and six species. Unfortunately, because the taxon entered in this genus is actually a family-level classification, the analysis of segments with *Cheloniidae* entered as the genus actually excluded segments with any of the five genera found within the *Cheloniidae* family. Or, put another way, segments correctly filled in with one of the five genera found within the *Cheloniidae* family were excluded in this analysis, because the genus category in those segments is filled in correctly. For example, all segments with the taxonomic information *Eretmochelys imbracata*, or hawksbill sea turtle, are excluded even though *Eretmochelys* is one of the genera found within the *Cheloniidae* family. Thus, this section is not truly an analysis of all segments involving genera and species within the *Cheloniidae* family; it is only an analysis of the segments that could not be identified beyond the family-level taxon *Cheloniidae*.

The 668 segments involving sea turtle were derived from 623 shipments. The shipments that produced multiple sea turtle segments produced between two and three segments per shipment.

Trade routes

Analyzing the shipments by the country of export showed that seized shipments containing sea turtle were exported from 28 different countries. Mexico exported the highest number with 266 exports or 42.7 percent of all sea turtle shipments. Together, the top-three countries of export were responsible for exporting 75.9 percent of the seizures containing sea turtle items (Table 23).

Table 23. Top Countries of Export for Sea Turtle Shipments

Rank	Country of Export	Number of Shipments	Percentage of Sea Turtle Shipments
1	Mexico	266	42.7%
2	El Salvador	134	21.5%
3	Nicaragua	73	11.7%

Analysis by the port of entry showed that seizures of sea turtle were made at 24 different ports of entry. Together, the top three ports of entry were responsible for making 67.8 percent of all seizures of sea turtle. El Paso seized 224, the highest number of shipments—35.9 percent of all sea turtle seizures (Table 24).

Table 24. Top Ports of Entry for Sea Turtle Shipments

Rank	Port of Entry	Number of Shipments	Percentage of Sea Turtle Shipments
1	El Paso, TX	224	35.9%
2	Houston, TX	111	17.8%
3	Miami, FL	88	14.1%

By analyzing the countries of export and the ports of entry, three prominent trade routes emerged: Mexico to El Paso, El Salvador to

[ii] *Cheloniidae* (sea turtle) is actually a taxonomic family classification; however it was entered in the genus category, for the purposes of this report was included in the genus-level analysis.

Houston, and Nicaragua to Miami. Like the trade routes identified for the *Strombus* genus, there was one dominant trade route for sea turtles and two lesser trade routes (Table 25).

Table 25. Top Trade Routes for Sea Turtle Shipments

Rank	Country of Export	Port of Entry	Number of Shipments	Percentage of Sea Turtle Shipments
1	Mexico	El Paso, TX	224	35.9%
2	El Salvador	Houston, TX	61	9.7%
3	Nicaragua	Miami, FL	51	8.1%

The seized shipments exported from Mexico and seized in El Paso contained mainly shoes (206 segments/438 shoes), but also small leather products (40 segments/44 products). The seized shipments exported from El Salvador and seized in Houston almost exclusively contained eggs (58 segments/1,641 eggs). Lastly, the seized shipments exported from Nicaragua and seized in Miami contained eggs (26 segments/599 eggs) and meat (17 segments/60 pounds).

It is interesting to compare the types of items found in these trade routes. It appears that one route was used mostly for leather products (Mexico to El Paso), while another was used almost exclusively for eggs (Nicaragua to Miami) and the third for a mix of eggs and meat, but not leather products.

For the sea turtle genus, no country of export or port of entry showed up more than once in the top-three trade routes. The most dominant trade route, Mexico to El Paso, used a land border port of entry. El Paso is a non-designated staffed port. The trade route from El Salvador to Houston used an airport port of entry, while the trade route from Nicaragua to Miami used an air and sea port of entry.

Species codes/species/listing status

The segments involving sea turtle items all had the same species code and were all missing entries in the species category. The species code used to trigger the sea turtle (*Cheloniidae*) entry under the genus category was "CHEL." In this case, because the species code entered triggered only a family-level taxonomic identification, no information was given with regards to the particular species involved. Thus, even though the species code was a complete four-digit code, it generated altered entries for these segments and provided no species-level information.

Because sea turtle (*Cheloniidae*) has been listed under CITES Appendix I since 1981 on a family level, it was still possible to indicate the listing status of all segments. In fact, the family *Cheloniidae* was listed in CITES Appendix II in 1977 before being uplisted to Appendix I in 1981. Species found in the *Cheloniidae* family are native to 102 countries, including many Latin American countries.

Additionally, all segments contained species listed as "both" (i.e., endangered and threatened depending on population segment) under the Endangered Species Act. The green sea turtle and the olive ridley sea turtle have been listed under the ESA since 1978 as either endangered or threatened depending on the population segment.[8] The loggerhead sea turtle was originally listed as threatened throughout its range in 1978, but, in 2011, certain populations segments were uplisted to endangered.[9] The hawksbill sea turtle, Kemp's ridley sea turtle and leatherback sea turtle have all been listed as endangered throughout their ranges under the predecessor to the ESA since 1970.[10] Considering all of the different listing statuses of the species in the *Cheloniidae* family, the difficulty of identifying the seizure's ESA listing status is understandable. However, this means that the number of species containing items from endangered populations could be much higher than the data can reveal.

Items by country of origin

An analysis of the items by country of origin provides important information regarding locations of at-risk populations of the species. Items derived from sea turtle (*Cheloniidae*) species originated in 27 different countries.

Two of the top-three countries of origin are also in the top-three countries of export for sea turtles (Tables 23, 26). However, the number-one country of origin is unknown, meaning that for 29.1 percent of all segments, the origin of the items is unknown (Table 26). This amounts to 543 individual items—a significant amount of missing data.

Table 26. Top Countries of Origin for Sea Turtle Segments

Rank	Country of Origin	Number of Segments	Percentage of Sea Turtle Segments
1	Unknown	195	29.1%
2	Mexico	139	20.8%
3	El Salvador	133	19.9%

Using the fact that in the data set 71.2 percent of the segments contained items that originated in the same country from which they were exported, it is possible to estimate the country of origin for the segments with an unknown country of origin. Out of the 195 segments containing items from an unknown country, 165 segments were exported from Mexico. Thus, 71.2 percent of the 165 segments exported from Mexico—or 117 segments—likely contain items that originated in Mexico.

Mexico was the most common *known* country of origin for segments of sea turtle. All 139 segments that contained items that originated in Mexico were also exported from Mexico and represented a total of 564 items. If combined with the 117 segments likely to contain items that originated in Mexico, this number could be as high as 256 segments, or 38.3 percent of all sea turtle segments, representing between 564 and 885 individual items.

El Salvador was the second most common known country of origin for sea turtle items with 133 segments containing items that originated there (Table 26). All but one of the segments containing items that originated in El Salvador were also exported from El Salvador. This single segment contained items that originated in El Salvador but was exported from Jamaica. A total of 3,587 individual items originated in El Salvador. It is notable that although El Salvador was the second-ranked known country of origin, and the third-ranked country of origin overall, a large volume of items originated there.

Source of items

The vast majority of the segments with the genus label sea turtle (*Cheloniidae*) contained items that were wild-sourced (Table 27). In addition, one segment contained a source code not found in the FWS Key.[iii]

Table 27. Sources of Sea Turtle Segments

Rank	Source	Number of Segments	Percentage of Sea Turtle Segments
1	Wild-sourced	657	98.3%
2	Captive-sourced	10	1.5%
3	Mislabeled*	1	0.1%

Segments involving items sourced from the wild were the most common and made up 98.3 percent of all sea turtle segments (Table 27). These segments represented items sourced from wild populations in 27 countries of origin. Of the 657 segments involving items sourced from the wild, 138 segments contained items sourced from wild populations in Mexico. These 138 segments represented a total of 562 individual items. Although fewer segments—132—were sourced from wild populations in El Salvador than from Mexico, the segments from El Salvador contained a much higher volume of goods: 3,544

[iii]One data point had "P" as the source, a code with no corresponding code in the FWS Key.

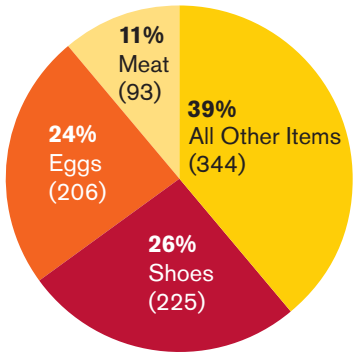
individual items and 11 pounds of meat. Therefore, the wild populations of species in the *Cheloniidae* family in Mexico and El Salvador are most at risk due to illegal trade.

The 10 segments containing items from captive-sources came from captive sources in the Cayman Islands, Mexico, El Salvador and unknown countries. These items included meat, shoes, eggs, small leather products and oil. There did not appear to be any patterns in terms of where these items were exported from, although six of the segments were seized in El Paso.

Wildlife descriptions

Seized sea turtle items were described using 21 different wildlife descriptions. Generally, sea turtle items were parts, products and derivatives. However, five shipments did involve live or dead animals. The two shipments involving live animals included one with 24 individual animals and one with 32. Each of the three shipments involving dead animals involved only one animal. Thus, it appears that sea turtle items are traded mostly for parts and products, rather than as live pets.

Fig. 8. Types of Sea Turtle Items by Segment



The description "shoe (including boots)" ("shoe") was the most commonly used wildlife description for seized items derived from sea turtle (*Cheloniidae*) species (Fig. 8). Two hundred and twenty-five segments describe the contents of the seizure as shoes made from sea turtle species. Seizures of shoes were recorded using the number of specimens as the unit measurement. The number of shoes in any one segment ranged from one to six, with the average being two shoes. All seized shoes were exported from Mexico, and almost all the segments containing shoes (206 segments) were seized in El Paso. Seizures of shoes were made every year from 2004 to 2013, except 2009.

The description "egg (whole, dead or blown excluding caviar)," was the second most commonly used description for seized sea turtle items (206 segments) (Fig. 8). These 206 segments amounted to 5,920 eggs. These seizures were recorded using four different unit measurements: number of specimens, grams, kilograms and pounds. The number of specimens was the unit measurement used most often and recordings ranged from four to 257 eggs in a single segment, with 30 eggs being the average. Seizures of eggs were made throughout the time frame of this data.

Lastly, the description "meat" was used in 93 segments (Fig. 8). These 93 segments contained a total of 443 pounds of meat. Five different unit measurements were used to describe seizures of meat: grams, kilograms, pounds, liters, and number of specimens. Seizures of meat ranged from one to 27 pounds, with the average being five pounds. Seizures of meat were made every year from 2004 to 2013.

Purpose of import

Only two purposes were identified for imports of sea turtle: personal and commercial (Table 28). Imports of sea turtle items for personal purposes far outweighed commercial purposes. Almost 90 percent of the seizures

Table 28. Purposes of Sea Turtle Imports by Segment

Rank	Purpose	Number of Segments	Percentage of Sea Turtle Segments
1	Personal	597	89.3%
2	Commercial	71	10.6%

made were imported for personal purposes, totaling over 5,184 individual items and more than 451 pounds. Examples of the contents of shipments imported for personal purposes include 84 eggs, 27 pounds of meat and 15 pieces of jewelry. Presuming that personal-purpose imports contain fewer than eight items, only 415 sea turtle segments were truly for personal consumption.[11]

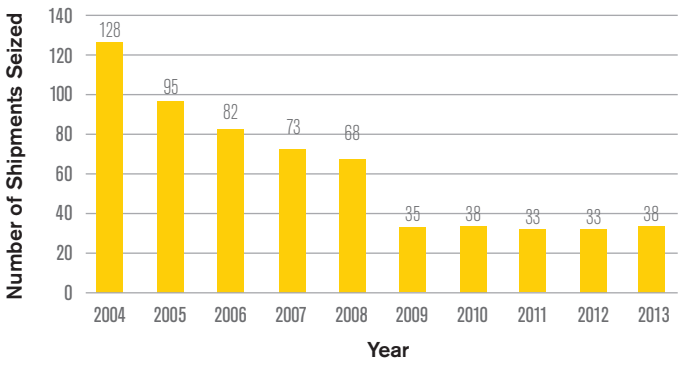
In contrast, commercial imports made up only 10 percent of all seizures, but totaled at least 2,069 individual items and 27 pounds (Table 28). Examples of the content of shipments declared as commercial include 267 eggs, 32 live sea turtles and four shoes. Although there were fewer segments imported for commercial purposes, those segments contained much higher volumes of items.

Trends over time

Annual seizures of sea turtle shipments have declined greatly since 2004 (Fig. 9). The annual average number of seizures is 68. In fact, 2004 had the highest number of shipments seized (128) in the date range analyzed, while 2012 and 2013 were tied for the lowest (33 shipments). Since 2009 the number of seizures has been below average. There has been a steady decline in seizures containing sea turtle items (Fig. 9). The average number of seizures from 2004 to 2008 was 89.9 seizures, while the average from 2009 to 2013 dropped to 35.4 seizures.

On a monthly basis, sea turtle shipment seizures fluctuated from zero to 18 shipments. On average, September saw the most seizures (7.1 seizures), followed closely by October (6.8 seizures). Both May and June were tied for the lowest average number of seizures (3.9 seizures). The month with the absolute highest number of seizures was September 2004 (18 seizures), and three months saw no seizures at all (February 2009, August 2011 and August 2012).

Fig. 9. Seizures Containing Sea Turtle Items 2004–2013



CAIMANS

The genus *Caiman* was the third most commonly recorded entry in the genus category with 557 segments (Table 5). Segments with *Caiman* as the genus represent 10.4 percent of all segments. These 557 segments emerged from 398 shipments.

Trade routes

The trade routes for shipments with items derived from *Caiman* species were analyzed by the country of export. Shipments containing *Caiman* items were exported from 18 different countries. Mexico was by far the most common and was responsible for exporting 70.3 percent of all seized *Caiman* shipments (280 shipments). The percentage of shipments exported from the second and third most common countries of export paled in comparison to the percentage of shipments exported from Mexico (Table 29).

Table 29. Top Countries of Export for Caiman Shipments

Rank	Country of Export	Number of Shipments	Percentage of Caiman Shipments
1	Mexico	280	70.3%
2	Nicaragua	25	6.2%
3	Colombia	25	6.2%

Next, the data was analyzed from the ports of entry. Shipments containing *Caiman* items were seized at 24 ports of entry. Together, the top three ports of entry were responsible for making 64.7 percent of all seizures (Table 30). Alone, El Paso was responsible for 45.2 percent of all seizures. Again, while Miami was the second most common port of entry, the percentage of shipments seized in Miami was far less than the percentage seized in El Paso.

Based on the analysis of the country of export and the port of entry, one substantial trade route and two lesser trade routes emerged (Table 31). Shipments using the top-three trade routes consisted mostly of two types of items: shoes and small leather products. The shipments that used the trade route from Mexico to El Paso contained mainly shoes (135 segments/1,255 shoes) and small leather products (107 segments/510 products). The shipments that used the trade route from Mexico to Louisville also contained mostly shoes (15 segments/56 shoes) and small leather products (15 segments/52 products). Lastly, the shipments that used the trade route from Mexico to Chicago contained mostly shoes (13 segments/192 shoes) and small leather products (12 segments/246 products). Interestingly, although the route from Mexico to Chicago was used by fewer shipments than the route from Mexico to Louisville, the volume of items was much higher (192 shoes, 246 small leather products compared to 56 shoes, 52 small leather products).

Table 30. Top Ports of Entry for Caiman Shipments

Rank	Port of Entry	Number of Shipments	Percentage of Caiman Shipments
1	El Paso, TX	180	45.2%
2	Miami, FL	46	11.5%
3	Louisville, KY	32	8.0%

Table 31. Top Trade Routes for Caiman Shipments

Rank	Country of Export	Port of Entry	Number of Shipments	Percentage of Caiman Shipments
1	Mexico	El Paso, TX	179	44.9%
2	Mexico	Louisville, KY	29	7.2%
3	Mexico	Chicago, IL	18	4.5%

While the route from Mexico to El Paso is clearly the most dominant route used by seizures containing *Caiman* items, the two other routes identified in Table 31 are also of concern. The most prevalent trade route, Mexico to El Paso, used a land border port of entry. As previously noted, El Paso is a nondesignated staffed port. With the other two trade routes, Mexico to Louisville, and Mexico to Chicago, the port of entry was an airport. Louisville and Chicago are designated ports. All three routes involved shipments exported from Mexico, indicating that shipments from Mexico involving *Caiman* should be highly scrutinized.

Species codes/species/listing status

The genus *Caiman* is made up of three species: common caiman, broad-snouted caiman and yacare caiman. In addition, *Caiman crocodilus*, or common caiman, has four subspecies.

The segments containing caiman resulted from seven different species codes of varying accuracy (Table 32). The first species code, "CAC?" resulted in a species identification, even though the last digit was a question mark. The code produced the taxonomic identification *Caiman crocodilus* (common caiman). However, because there are four subspecies of common caiman, the question mark is a placeholder for the subspecies level identification. The code "CACY" also produced accurate taxonomic information down to the species level: *Caiman yacare* (Yacare caiman).

The next species code involved a question mark as well as a zero, "CA0?" (Table 32). This species code produced the taxonomic information *Caiman species*. Although this code generated the word "species" in the species category, it did not provide identification beyond the genus level. As the genus *Caiman* consists of three species, this code provided incomplete information.

Table 32. Species Codes for Caiman Segments

Rank	Species Code	Number of Segments	Percentage of Caiman Segments	Taxonomic Information Generated	Common Name
1	CAC?	279	50.0%	*Caiman crocodilus*	Common caiman
2	CA0?	166	29.8%	*Caiman* species	Caiman species
3	CACF	75	13.4%	*Caiman crocodilus fuscus*	Common caiman
4	CACY	23	4.1%	*Caiman yacare*	Yacare caiman
5	CACC	11	1.9%	*Caiman crocodilus crocodilus*	Common caiman
6	CAIL	2	0.3%	*Caiman latirostris*	Broad-snouted caiman
7	CLAT	1	0.1%	*Caiman latirostris*	Broad-snouted caiman

Two of the codes ("CACC" and "CACF") provided identification down to the subspecies level (Table 32). For example, the code "CACC" produced the taxonomic information *Caiman crocodilus crocodilus* (common caiman), and the code "CACF" generated the taxonomic information *Caiman crocodilus fuscus* (common caiman).

The last two codes, "CAIL" and "CLAT," produced identical taxonomic information even though one of the digits was different and two of the digits were in different places (Table 32). Both of these species codes produced the taxonomic information *Caiman latirostris* (broad-snouted caiman). However, one code had the letter "I" and one had the letter "T." In addition, the order of the letters in both codes was different. It is unclear how these species codes produced the same taxonomic information. Three species and two subspecies emerged from the species codes.

The broad-snouted caiman (*Caiman latirostris*) has been listed in CITES Appendix I since 1997.[12] All other species of caiman have been listed in CITES Appendix II since 1977. The Yacare caiman (*Caiman yacare)* was originally listed as endangered under the predecessor to the ESA in 1970, but was since downlisted to threatened in 2000.[13] The common caiman (*Caiman crocodilus*) has been listed under the ESA as threatened based on similarity of appearance since 2000.[14] The broad-snouted caiman (*Caiman latirostris*) was originally listed as endangered throughout its range under the ESA in 1976, but certain populations were downlisted to threatened in 2013.[15] All of the data entries had the name "caiman" in the generic name category.

Item by country of origin

The *Caiman* items seized originated in 15 different countries. As the country of origin was the same as the country of export in 71.2 percent of all segments, it is not surprising that two of the top-three countries of export are also found in the top-three countries of origin (Tables 29 and 33). However, unknown countries of origin replaced Nicaragua, which was one of the top-three countries of export.

Unfortunately, for 47.7 percent of all *Caiman* segments the country of origin was unknown (Table 33). This means that for almost half of the segments, or 2,239 individual items, the country

of origin is unknown. This data gap obscures valuable information about at-risk populations of caiman. However, based on the fact that segments in this data set had the same country of origin and country of export 71.2 percent of the time, it is possible to infer the origin country for many of the items of unknown origin. In the case of *Caiman* segments, 238 of the 266 segments with an unknown country of origin were exported from Mexico. As much as 71.2 percent of those segments—or 169 segments—could also contain items that originated in Mexico.

Table 33. Top Countries of Origin for Caiman Segments

Rank	Country of Origin	Number of Segments	Percentage of Caiman Segments
1	Unknown	266	47.7%
2	Mexico	148	26.5%
3	Colombia	59	10.5%

All 148 segments with items that originated in Mexico were also exported by Mexico. These 148 segments contained a total of 461 individual items. If these segments are combined with the 169 segments that could contain items that originated in Mexico, the total number of segments containing items that originated in Mexico could be as high as 317 segments and 700 individual items.

Of the 59 segments that originated in Colombia, only 31 were also exported from Colombia. In total, segments containing items that originated in Colombia represented 3,181 individual items. Mexico was responsible for exporting 26 of these segments with items that originated in Colombia, or 1,016 individual items. It is possible that the segments containing items that originated in Colombia were first sent from Colombia to Mexico and later from Mexico to the United States. As the data set does not show where the shipments themselves originated, it is impossible to know if the shipments containing these segments were simply using Mexico as a stopover or if Mexico was responsible for the contents and the export.

Source of items

Segments containing *Caiman* items were from six different sources. Eleven of the segments were mislabeled with the source code "P" which is not a source code identified in the FWS Key (Table 34).

Table 34. Sources of Caiman Segments

Rank	Source	Number of Segments	Percentage of Caiman Segments
1	Wild-sourced	483	86.7%
2	Captive-sourced	63	11.3%
3	Mislabeled*	11	1.9%

Items sourced from the wild were sourced from wild populations in 15 different countries. However, 242 segments contained items sourced from wild populations in unknown countries.

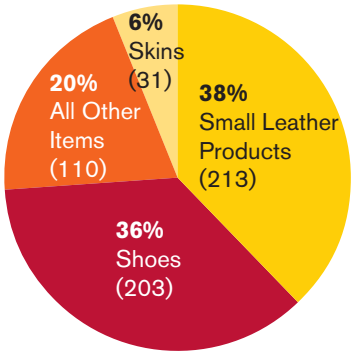
One hundred and thirty-six segments, representing 367 individual items, were known to be sourced from wild populations in Mexico. This indicates that wild populations of *Caiman* species in Mexico are at risk due to illegal trade.

Of the 63 segments with items from captive sources, 31 segments contained items from captive sources in Colombia.[16] These segments amounted to 2,272 individual items: shoes, skins, skin pieces and small leather products. Future shipments containing items from captive facilities in Colombia should be scrutinized, because it is clear that items sourced there make it into the illegal market. Notably, 20 of these segments were exported from other countries, mainly Mexico but also Ecuador. Since these segments ostensibly contained items from captive sources, it is possible that at some point they were considered legally traded items.

Wildlife descriptions

The *Caiman* segments revealed 15 different wildlife descriptions. Generally, the descriptions were for parts and products. However, 28 segments involved dead animals and two segments involved live animals (for a combined total of 54 animals). Together, the top-three wildlife descriptions were used in 80.4 percent of all caiman segments (Fig. 10).

Fig. 10. Types of Caiman Items by Segment



The description "leather product (small manufactured including belt, wallet, watchband)" ("small leather product") was used to describe 38.2 percent of the segments (Fig. 10). Seizures of small leather products were all recorded using the number of specimens as the unit measurement. The number of small leather products seized in any one shipment ranged from one to 343 items, with the average being 12 small leather products. Out of the 213 segments involving small leather products, 107 were exported from Mexico and seized in El Paso. This demonstrated a high supply and demand relationship between Mexico and El Paso for small caiman leather products. Seizures of small leather products were made every year from 2004 to 2013.

The description "shoe (including boots)" was used to describe 203 segments (Fig. 10). Seizures of shoes were all recorded using the number of specimens as the unit measurement. Seizures of shoes ranged from one to 500 in any one shipment, with the average being 10 shoes. Out of the 203 segments containing shoes made from *Caiman*, 135 segments were exported from Mexico and seized in El Paso. This demonstrates a second supply chain from Mexico to El Paso, this time for caiman leather shoes and boots. Seizures of caiman leather shoes and boots were made every year from 2004 to 2013.

Lastly, the description "skin (substantially whole)" was used to describe 31 segments (Fig. 10). Seizures of caiman skins were recorded using the number of specimens as the unit measurement. The number of skins in any one segment ranged from one to 1,000, with the average being 42 skins. No particular trade routes in caiman skins stood out, although about half were identified as being from captive sources and half from the wild. Seizures of caiman skins were made every year from 2004 to 2013.

Trade routes in specific items emerged in this analysis. For instance, it appeared that a consistent number of shipments containing small caiman leather products and shoes were sent from Mexico to El Paso, while trade in caiman skins was more widespread.

Purpose of import

Four different purposes of import were declared on the import forms for seized *Caiman* items. Notably, in the case of *Caiman* seizures, personal and commercial purposes were used with comparative frequency (Table 35). In fact, this was the only analysis in which commercial segments were more common than personal segments.

Table 35. Purposes of Caiman Imports by Segment

Rank	Purpose of Import	Number of Segments	Percentage of Caiman Segments
1	Commercial	280	50.2%
2	Personal	275	49.3%
3	Hunting trophy	1	0.1%
4	Scientific	1	0.1%

Imports made for commercial purposes included some very large shipments, but also some shipments that overlapped with quantities imported for personal purposes. In total, the 208 segments imported for commercial purposes contained a total of 7,163 individual items and 75 pounds. For example, 1,016 caiman skin pieces were imported for commercial purposes. However, 30 small leather products were also imported for commercial purposes (while a shipment of 33 was imported for personal purposes). As the purpose of import is taken from the import declaration form, and thus determined by the importer themselves, it is a very subjective category and difficult to validate.

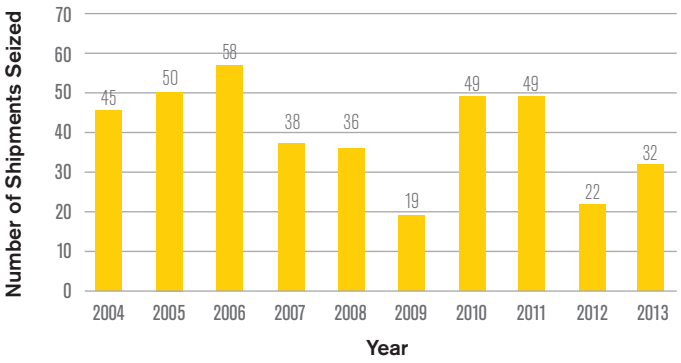
As with the other genus-level analyses, the personal purpose declarations seemed to overlap with the commercial purpose declaration with regard to the volume of items. The 275 segments imported for personal purposes contained a total of 1,216 individual items. In the case of caiman imports, a seizure of 500 shoes was imported for personal reasons. A shipment of 33 small leather products was also declared for personal purposes. Given that shipments containing eight or more items are presumed to be for commercial purposes, 262 caiman segments were truly imported for personal consumption.[17]

The one segment imported as a hunting trophy involved 63 small leather products and the one segment imported for scientific purposes involved five live common caimans.

Trends over time

The annual number of seized shipments fluctuated between 19 and 58, with the average being 39.8 shipments a year (Fig. 11). No trends in the number of *Caiman* shipments seized annually were apparent. The highest number of shipments seized was 58 shipments in 2006; the lowest was 19 in 2009.

Fig. 11. Seizures Containing Caiman Items 2004-2013



On a monthly basis, seizures ranged from zero to 10. The average number of seizures per month ranged from 2.8 to 3.9. The month with the highest average number of seizures was May (3.9 seizures on average) followed by March (3.7 seizures on average). The month with the lowest average number of seizures was a tie between July and August (2.8 seizures on average). The highest absolute number of seizures in any month was 10 seizures and occurred twice: once in April 2004 and once in June 2006. Eleven months saw no seizure of *Caiman* whatsoever. In particular, the month of June saw zero seizures of *Caiman* from 2008 to 2010.

CROCODILES

The genus *Crocodylus* (crocodile) was the fourth most commonly recorded genus. Segments with this genus represented 9.7 percent of all segments (see Table 5, page 25). These 518 segments were found in 400 shipments.

Table 36. Top Countries of Export for Crocodile Shipments

Rank	Country of Export	Number of Shipments	Percentage of Crocodile Shipments
1	Mexico	375	93.7%
2	Colombia	4	1.0%
3	Nicaragua	3	0.7%

Trade routes

Shipments involving crocodile items were exported from 17 different countries to the United States. Although seized shipments involving crocodile items were exported from 17 countries, Mexico exported all but 25 of the shipments, or 93.7 percent of all crocodile shipments (Table 36). Seizures of crocodile are therefore unique in that one country is almost exclusively responsible for all the exports of items from the genus.[iv]

The second part of the analysis revealed shipments containing crocodile items were seized at 14 different ports of entry. El Paso was the most common port of entry for seizures of crocodile shipments, followed by Louisville and Memphis, which are international air cargo hubs (Table 37). All 316 shipments seized in El Paso were exported from Mexico (although not all the shipments exported from Mexico were seized in El Paso).

Table 37. Top Ports of Entry for Crocodile Shipments

Rank	Port of Entry	Number of Shipments	Percentage of Crocodile Shipments
1	El Paso, TX	316	79.0%
2	Louisville, KY	35	8.7%
3	Memphis, TN	11	2.7%

Table 38. Top Trade Routes for Crocodile Shipments

Rank	Country of Export	Port of Entry	Number of Shipments	Percentage of Crocodile Shipments
1	Mexico	El Paso, TX	316	79.0%
2	Mexico	Louisville, KY	31	7.7%
3	Mexico	Laredo, TX	8	2.0%

The breakdown of the top-three trade routes for crocodile is an extreme version of the pattern that has emerged for other genera: The top-ranked trade route was used by an incredible 79 percent of all seized shipments. The country of export was also the same for all of the top-three trade routes: Mexico (Table 38). However, this was also seen in the top-three trade routes for both *Caiman* shipments and *Iguana* shipments.[v]

Shipments that used the route from Mexico to El Paso contained mainly shoes (276 segments/598 shoes) followed by small leather products (131 segments/233 products). Only 14 segments contained items that were neither shoes nor small leather products. Shipments that used the route from Mexico to Louisville also contained mostly shoes (16 segments/55 shoes) and small leather products (19 segments/46 products). Lastly, shipments that used the route from Mexico to Laredo also contained shoes (five segments/14 shoes) and small leather products (two segments/two products), as well as one skull and one trophy.

It is possible to conclude that all three routes are concentrated on the trade in shoes and small leather products. However, given that shoes and small leather products made up 93.2 percent of all segments containing crocodile items, it is perhaps more accurate to say that these are just the most

[iv] In comparison, Mexico exported 70.3 percent of all shipment containing the genus *Caiman*.

[v] For comparison, the percentage of shipments using the top-ranked trade route in the other analyses was as follows: 27 percent of *Iguana* shipments exported from Mexico and seized in Los Angeles, 44.9 percent of *Caiman* shipments exported from Mexico and seized in El Paso, 33.9 percent of *Cheloniidae* shipments exported from Mexico and seized in El Paso, 40.7 percent of *Strombus* shipments exported from Haiti and seized in Miami, and 22.6 percent of all shipments exported from Mexico and seized in El Paso.

frequented routes of trade. (Item-specific trade routes are discussed under "wildlife descriptions," page 55–56). While the country of export was the same for all three trade routes, there were no repetitions in the port of entry. The top-ranked trade route made use of a land border port of entry. El Paso is currently a nondesignated staffed port. The third-ranked trade route also made use of a land border port of entry, Laredo. Laredo is also a nondesignated staffed port. The second-ranked trade route made use of an airport port of entry, Louisville, a designated port of entry.

Species codes/species/listing status

The crocodile genus (*Crocodylus*) includes 11 species. Five were identified in the data set: American crocodile, Morelet's crocodile, Nile crocodile, saltwater crocodile and Cuban crocodile (Table 39).

Table 39. Species Codes for Crocodile Segments

Rank	Species Code	Number of Segments	Percentage of Crocodile Segments	Taxonomic Information Generated	Common Name
1	CR0?	505	97.4%	*Crocodylus species*	Crocodile species
2	CROA	4	0.7%	*Crocodylus acutus*	American croocdile
3	CRMO	2	0.3%	*Crocodylus moreletii*	Morelet's crocodile
4	CROL	2	0.3%	*Crocodylus niloticus*	Nile crocodile
5	CAUS	1	0.1%	*Crocodylus acutus*	American croocdile
6	CNIL	1	0.1%	*Crocodylus niloticus*	Nile crocodile
7	CRNI	1	0.1%	*Crocodylus niloticus*	Nile crocodile
8	CROO	1	0.1%	*Crocodylus porosus*	Saltwater crocodile
9	CROR	1	0.1%	*Crocodylus rhombifer*	Cuban crocodile

Nine different species codes generated *Crocodylus* in the genus category (Table 39). The most commonly used code was "CR0?," which is an incomplete code. This code has placeholders in the last two digits. Even so, the first two digits are sufficient to generate the *Crocodylus* genus, while the two placeholders generate the word "species" in the species category.

Next, the species code "CROA" generated the taxonomic identification of American crocodile (*Crocodylus acutus*). Interestingly, a second code, "CAUS," also produced the taxonomic identification American crocodile (*Crocodylus acutus*) (Table 39). These two codes differ in the last three digits, but somehow produced the same information. This also occurred with the codes "CROL," "CNIL" and "CRNI." All three of these codes produced the same taxonomic information: Nile crocodile (*Crocodylus niloticus*). Thus, even though nine different species codes were used to generate segments with the genus *Crocodylus*, only five species were actually identified in those codes.

Lastly, three of the species codes were both complete and accurate. No variations of these codes were used to produce the same taxonomic information. The code "CRMO" produced the identification Morelet's crocodile (*Crocodylus moreletii*); the code "CROO" produced the identification Saltwater crocodile (*Crocodylus porosus*); and the code "CROR" produced the identification Cuban crocodile (*Crocodylus rhombifer*).

The genus crocodile (*Crocodylus*) has been listed under CITES Appendix II since 1977. However, some of the species within the genus have been uplisted to Appendix I. The American crocodile, for example, was uplisted in 1981. The Morelet's crocodile and the Nile crocodile were actually listed in Appendix I in 1975, prior to the *Crocodylus* genus listing in Appendix II. Since then, populations of both species have been downlisted to Appendix II. The Cuban population of the American crocodile was also downlisted to Appendix II in 2005. The saltwater crocodile was first listed in CITES

Appendix II in 1975. Today, all but three populations of the saltwater crocodile are in Appendix I, while the others have remained Appendix II. The Cuban crocodile has been listed in CITES Appendix I since 1975, and all populations remain in that appendix.

The majority of crocodile segments (508 segments) indicate CITES Appendix II listing status. Ten segments indicate a CITES Appendix I listing. These segments all have complete species codes for the following species: American crocodile, Morelet's crocodile, Nile crocodile, saltwater crocodile and Cuban crocodile. All of these species have certain populations listed in CITES Appendix I. Of the 508 segments identified as involving CITES Appendix II species, 505 of them had the incomplete species code "CR0?" This indicates that perhaps these species were mislabeled. Had those 505 segments been identified down to the species level, they may have actually involved CITES Appendix I species.

Eight segments involved species listed as endangered under the ESA: Morelet's crocodile, American crocodile, saltwater crocodile and Cuban crocodile. Morelet's crocodile was originally listed as endangered under the predecessor to the ESA in 1970, but was delisted completely in 2012 due to recovery.[18] The American crocodile was originally listed as endangered under the ESA in 1979, however, one population was downlisted to threatened in 2007.[19] All but one population of the saltwater crocodile were listed as endangered under the ESA in 1979.[20] Lastly, the Cuban crocodile has been listed as endangered through its range under the predecessor to the ESA since 1970.[21]

Five segments involved species listed as threatened under the ESA: American crocodile and Nile crocodile. As mentioned, one population of the American crocodile was downlisted to threatened in 2007. The Nile crocodile was initially listed as endangered throughout its range in 1970, but downlisted to threatened in 1993.[22]

Items by country of origin

An analysis of the seized items country of origin can assist in identifying the most at-risk populations. In the case of segments with the genus *Crocodylus*, the items seized originated in 15 different known countries.

As seen in other genus-level analyses, the most common country of origin for seized crocodile items was unknown. In this case, 54.4 percent of all segments (274 segments) contained items that originated in an unknown country, for a total of 608 individual items (Table 40). However, since the country of origin mirrored the country of export in 71.2 percent of this data, it is possible to estimate where a significant portion of the items in these segments originated. For segments with the genus *Crocodylus*, 274 of the 282 containing items from an unknown country of origin were exported from Mexico. Thus, as much as 71.2 percent of these segments—195 segments—could contain items that also originated in Mexico.

Table 40. Top Countries of Origin for Crocodile Segments

Rank	Country of Origin	Number of Segments	Percentage of Crocodile Segments
1	Unknown	282	54.4%
2	Mexico	212	40.9%
3	Colombia	5	0.9%

Mexico was the most common *known* country of origin for crocodile items (Table 40). All the segments containing items that originated in Mexico were also exported from Mexico (212 segments). In total, the segments containing items that originated in Mexico represented 425 individual items. This further increases the likelihood that the 195 segments containing items from unknown countries of origin that were exported from Mexico actually originated in Mexico as

well. If those segments are combined with the segments known to have originated in Mexico, the number of segments containing items that originated in Mexico could be as high as 406 segments, representing as many as 1,014 individual items.

Lastly, five segments contained items that originated in Colombia (Table 40). Interestingly, these five segments represented 631 individual items—more than the volume of items that originated in either unknown countries or Mexico. Of those, three segments were exported by Mexico and two by Colombia. The three segments exported from Mexico contained 623 individual items.

Source of items

Seized shipments containing crocodile items came mainly from wild sources (96 percent) (Table 41). Items sourced from the wild came from wild populations in 12 different countries. The 499 segments containing items sourced from the wild represented a total of 1,274 items. Specifically, 206 segments contained items sourced from wild populations in Mexico, representing 413 items. This indicates that 42.1 percent of all crocodile segments contained items sourced from wild populations in Mexico (206 segments).

Table 41. Sources of Crocodile Segments

Rank	Source	Number of Segments	Percentage of Crocodile Segments
1	Wild-sourced	499	96.0%
2	Captive-sourced	19	3.6%

The 19 segments containing items from captive sources represented 640 individual items (Table 41). Notably, 16 of these segments contained items from captive sources in unknown countries. This raises the question of how it is possible to determine that an item is from a captive source when it is not known in which country it originated. The other three segments contained items known to have originated in captive facilities in Colombia. Alone, these three segments contained 623 of the captive-sourced items. Interestingly, all of these segments, although they contained items that reportedly originated in captive facilities in Colombia, were exported from Mexico. This indicates a likely stream of trade in these items from Colombia to Mexico and then into the United States.

Wildlife descriptions

Fifteen different wildlife descriptions were used to describe seized items derived from crocodile. All but one of the 518 segments involved parts or products. A single dead animal was seized in 2006, but no live or dead animals have been seized since.

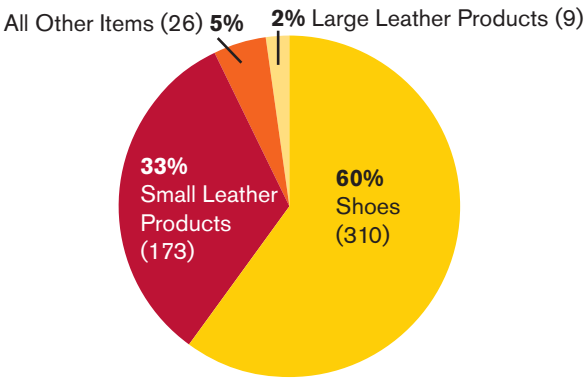
Similar to caiman seizures, shoes and small leather products were among the most commonly seized crocodile items (Fig. 12). Here, the description "shoes (including boots)" was used in 59.8 percent of all segments and found in 308 shipments. Seizures of shoes were all recorded using the number of specimens as the unit measurement.

The volume of shoes in any one shipment ranged from one to 374, with the average being four shoes. All seizures of shoes were found in shipments exported from Mexico; none of the shipments exported from other countries contained shoes. In fact, a total of 275 shipments exported from Mexico and seized in El Paso contained shoes made from crocodile species. It appears that the dominant trade route for crocodile shoes was from Mexico to El Paso. Considering that only 400 shipments of crocodile were seized, more than three-quarters of the shipments contained shoes. Shipments involving shoes were seized every year from 2004 to 2013.

The description "leather product (small manufactured including belt, wallet, watchband)" ("small leather product") was used to describe 33.4 percent of all segments and found in 169 crocodile

shipments (Fig. 12). Seizures of small leather products were all recorded using the number of specimens as the unit measurement. The volume of small leather products seized in any one shipment ranged from one to 99, with the average being two products. Of the 169 shipments involving small leather products, 129 shipments were exported from Mexico and seized in El Paso. Again, it appears that the dominant trade route for small crocodile leather products was from Mexico to El Paso. Shipments involving small leather products were seized every year from 2004 to 2013.

Fig. 12. Types of Crocodile Items by Segment



Lastly, the description "leather product (large, manufactured, including briefcase, suitcase, furniture)" ("large leather product") was used to describe 1.7 percent of all segments and found in nine shipments (Fig. 12). Seizures of large leather products were all recorded using the number of specimens as the unit measurement. The volume of large leather products found in any one shipment ranged from one to four, with the average being two products. Shipments involving large leather products were exported from four different countries and seized at five different ports of entry. There was insufficient data to determine any trade routes for this particular type of product.

Given that shoes and small leather products accounted for the content of 93.2 percent of all crocodile segments, the trade route from Mexico to El Paso is not only the route used most frequently to trade these particular products, but the trade route most frequently used by all shipments containing illegal crocodile products. However, it is reasonable to say that the trade in crocodile shoes may be using the route from Mexico to El Paso exclusively.

Purpose of import

Three purposes for the importation of crocodile items were indicated on the import declaration forms of the 400 seized shipments of crocodile (Table 42). As with the other analyses, the contents of the seizures declared as personal and commercial often overlapped or were inconsistent.

Personal imports far outnumbered commercial imports (Table 42). The 460 segments imported for personal purposes—as claimed by the importer—contained a total of 924 individual items. In the case of seized crocodile items, examples of imports made for personal purposes include 23 teeth, 10 shoes and six small leather products. As shipments containing eight or more items are presumed to be for commercial purposes, five of the segments declared as "personal" were likely for commercial purposes.[23] In contrast, the 56 segments imported for commercial purposes contained a total of 854 individual items. Thus, although there were four times as many personal segments than commercial segments, the personal segments contained an average of two items per segment, while the commercial segments contained an average of 15 items per segment. Examples of imports made for commercial purposes included 374 shoes, 99 small leather products and one skin piece.

Table 42. Purposes of Crocodile Imports by Segment

Rank	Purpose of Import	Number of Segments	Percentage of Crocodile Segments
1	Personal	460	88.8%
2	Commercial	56	10.8%
3	Scientific	2	0.3%

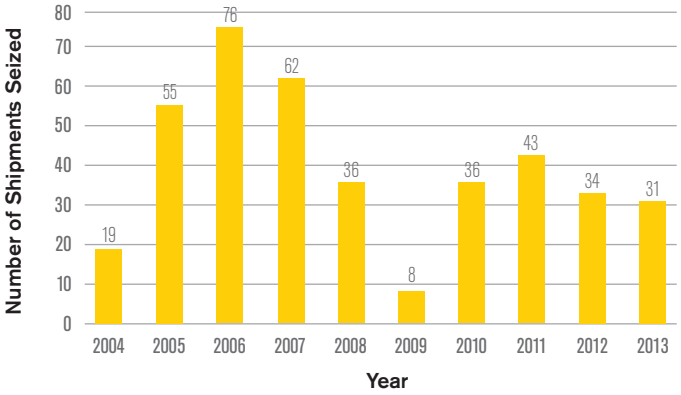
The two segments that contained items imported for scientific purposes both involved American crocodile products specifically, and both were described as "specimen (scientific or museum)." One shipment involved 136 scientific specimens and the other involved 12. As discussed previously, this description is so broad that it could describe almost any type of part or product in addition to a full-bodied specimen.

Trends over time

Annually, seizures of shipments involving crocodile items ranged from eight to 76 with the average being 40 seizures (Fig. 13). Seizures peaked in 2006 with 76 seizures and were reached a low of eight in 2009. If the seizures are considered in five-year increments, it is possible to discern that there has been a decline in the number of crocodile seizures. Seizures averaged 49.6 from 2004 to 2008 and 30.4 from 2009 to 2013. Thus, the average number of seizures has declined by almost 20.

On a monthly basis, seizures ranged from zero to 13. The month with the highest average number of seizures was September (4.3 seizures on average) followed by February and December (4.2 seizures on average). The month with the lowest average number of seizures was October (2.1 seizures on average) followed by January, April and May (each with an average of 2.9 seizures). The month with the highest absolute number of seizures was September 2006 (12 seizures). Fifteen months saw no seizures of crocodile shipments whatsoever, including a five-month stretch from August to December of 2004. In three different years, November also had zero seizures (2004, 2008 and 2009).

Fig. 13. Seizures Containing Crocodile Items 2004-2013



IGUANAS

Iguana was the fifth most commonly used genus category and accounted for 437 segments or 8.2 percent of all segments (see Table 5, page 25). These 437 segments emerged from 385 shipments.

Trade routes

In analyzing the trade routes for shipments involving items from the *Iguana* genus, the most common countries of export were considered first (Table 43). Shipments involving *Iguana* items were exported from 14 different countries to the United States. Mexico was the most common country of export for seized shipments involving *Iguana* items and alone responsible for exporting 63.9 percent of all seized shipments. Together, Mexico, El Salvador and Honduras, the top three countries of export in that order, were responsible for exporting 92.9 percent of all seized shipments (Table 43).

Table 43. Top Countries of Export for Iguana Shipments

Rank	Country of Export	Number of Shipments	Percentage of Iguana Shipments
1	Mexico	246	63.9%
2	El Salvador	97	25.1%
3	Honduras	15	3.9%

Analyzing the trade routes from the port of entry provided a more complete picture of the movement of the shipments (Table 44). Shipments involving illegal *Iguana* items were seized at 24 different ports of entry. The most seizures (129 shipments) were made in Los Angeles (33.5 percent).

The top-three trade routes for seized shipments containing *Iguana* items were Mexico to Los Angeles, Mexico to Laredo, and Mexico to Chicago (Table 45). Only one country of export is in the top-three trade routes. This was also the case for the top-three trade routes used by shipments containing caiman and crocodile items. These top-three *Iguana* trade routes also followed another pattern seen in all the other analyses: one dominant trade route followed by two lesser trade routes. Here, the route from Mexico to Los Angeles was used by 27 percent of all shipments while the second-ranked trade route was only used by 10.1 percent of all shipments (Table 45).

Table 44. Top Ports of Entry for Iguana Shipments

Rank	Port of Entry	Number of Shipments	Percentage of Iguana Shipments
1	Los Angeles, CA	129	33.5%
2	Laredo, TX	39	10.1%
3	Miami, FL	38	9.8%

Shipments that used the route from Mexico to Los Angeles contained only three products: meat (96 segments/56 pounds) and to a lesser extent eggs (17 segments/192 eggs) and dead animals (4 segments/17 animals). Shipments that used the route from Mexico to Laredo contained mainly meat (28 segments/135 pounds) and dead animals (six segments/27 animals). The shipments that used the route from Mexico to Chicago contained mainly meat (28 segments/36 pounds).

Table 45. Top Trade Routes for Iguana Shipments

Rank	Country of Export	Port of Entry	Number of Shipments	Percentage of Iguana Shipments
1	Mexico	Los Angeles, CA	104	27.0%
2	Mexico	Laredo, TX	39	10.1%
3	Mexico	Chicago, IL	33	8.5%

In this case, although the country of export was the same for all of the top-three trade routes, there were no duplicates in the top-three ports of entry (Table 45). The top-ranked trade route made use of an air and sea port of entry: Los Angeles, a designated port of entry. The third-ranked trade route also made use of an airport: Chicago, also a designated port of entry. Lastly, the second-ranked trade route made use of a land border port of entry: Laredo, a staffed nondesignated port of entry.

Species codes/species/listing status

The genus *Iguana* includes only one species, *Iguana iguana*. Segments with the genus *Iguana* were produced by only two different species codes: "IGUI" and "IGU?" (Table 46). There was almost an equal use of these two codes within the data, with each code being used about 50 percent of the time. The code "IGU?" is an incomplete code, because the fourth digit is a question mark. The question mark produced the word "species" in the species category instead of taxonomic information. However, the code "IGUI" was a complete and accurate four-digit code and produced the taxonomic information *Iguana iguana* (common iguana). The species *Iguana iguana* was the only

species identified. As the genus *Iguana* only has one species, the segments with the code "IGU?" were either *Iguana iguana* or misidentified with the genus *Iguana*.[vi]

Table 46. Species Codes for Iguana

Rank	Species Code	Number of Segments	Percentage of Segments	Taxonomic Information Generated	Common Name
1	IGUI	224	51.2%	Iguana iguana	Common iguana
2	IGU?	213	48.7%	Iguana species	Iguana species

The genus *Iguana* has been listed in CITES Appendix II since 1977. Thus, all segments with the genus *Iguana*, regardless of species, are listed in CITES Appendix II. The genus *Iguana* is not listed under the ESA.

Items by country of origin

Items discovered in illegal shipments of *Iguana* originated from 15 known countries of origin. The top-three countries of origin produced 89.4 percent of segments containing *Iguana* items (Table 47). Mexico was the most common country of origin. All 261 segments involving *Iguana* items with Mexico as the country of origin were also exported from Mexico. Similarly, all 111 segments that contained items from El Salvador were exported from El Salvador. Finally, all 19 segments involving specimens from Honduras were also exported by Honduras. The fact that all three of the top countries of origin also exported the items indicates that there may not be a lot of movement of *Iguana* items within Latin America, the Caribbean and Mexico. It appears that *Iguana* items tend to originate in the same country from which they are exported to the United States. In fact, looking at all the *Iguana* segments, only two segments contained items known to have originated in a country other than the one from which they were exported.

Table 47. Top Countries of Origin for Iguana Segments

Rank	Country of Origin	Number of Segments	Percentage of Iguana Segments
1	Mexico	261	59.7%
2	El Salvador	111	25.4%
3	Honduras	19	4.3%

Source of items

Items derived from *Iguana* were almost exclusively sourced from the wild (Table 48). In fact, 99.5 percent of the segments contained items sourced from the wild, representing a total of 3,764 individual items and 828 pounds of meat, eggs and dead animals. Overall, iguana items were sourced from wild populations in 15 different countries. Of the 435 segments containing items sourced from the wild, 260 segments contained items sourced from wild populations in Mexico (681 items/230 pounds). Another 110 segments contained items sourced from wild populations in

Table 48. Sources of Iguana Segments

Rank	Source	Number of Segments	Percentage of Iguana Segments
1	Wild-sourced	435	99.5%
2	Captive-sourced	2	0.4%

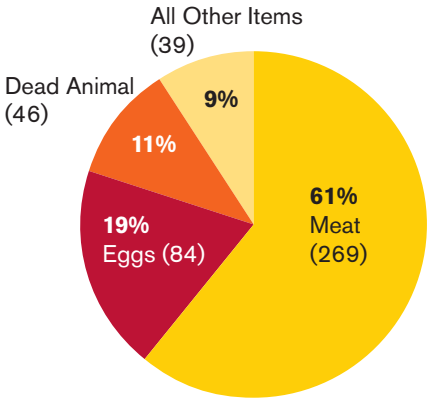
[vi]There are other genera with species of iguana, such as *Cyclura* and *Brachylophus*.

El Salvador (1,706 items/256 pounds). Even though segments containing items sourced from wild populations in Mexico occurred more often throughout the data, the segments containing items sourced from wild *Iguana* populations in El Salvador actually contained a larger volume of items. Therefore, it is likely that the wild populations in El Salvador are more at-risk due to illegal trade than wild populations in Mexico, although both populations are negatively impacted.

Wildlife descriptions

In total, 14 different descriptions were used to describe the seized *Iguana* items. While 86.2 percent of the seizures involved items derived from *Iguana* species, the other 13.8 percent involved live or dead animals (60 segments). In total, 241 dead animals and 18 live animals were seized.

Fig. 14. Types of Iguana Items by Segment



Meat was the most common descriptor used (Fig. 14). This is not surprising, given the known demand for iguana meat. Seizures of meat were measured with four different unit measurements. In total, these 269 segments represented at least 944 pounds of meat. Seizures of *Iguana* meat ranged in volume from one to 179 pounds, with an average of seven pounds. Seized *Iguana* meat most frequently originated from populations in Mexico (182 segments), were most frequently exported from Mexico (185 segments), and were most frequently seized in Los Angeles (115 segments). Seizures of *Iguana* meat were made every year from 2004 to 2013.

The description "eggs (whole dead or blown excluding caviar)" was the second most commonly used descriptor (Fig. 14). Segments involving eggs represented 19 percent of all segments. Seizures of eggs were recorded using four different types of unit measurements. At least 3,097 iguana eggs were seized in the time frame of this data. The volume of eggs seized in any one instance ranged from one to 262, with 53 eggs being the average. Segments containing iguana eggs most frequently originated from El Salvador (35 segments), were mostly exported from El Salvador (35 segments), and most frequently seized in Los Angeles (22 segments). Seizures of *Iguana* eggs were made every year from 2004 to 2013.

Lastly, the description "dead animal (whole animal)" was the third most commonly used descriptor (Fig. 14). None of the other genus-level analyses had live or dead animals in the top-three types of items. Here, dead animals represented 11 percent of all the segments. Seizures of dead animals were recorded using four different unit measurements, although the number of specimens was the most commonly used unit. At least 241 dead iguanas were found in the 46 segments. The volume of dead iguanas in any single shipment ranged from one to 40, with the average being six dead animals. Dead iguanas most frequently originated in Mexico (27 segments), were most frequently exported from Mexico (27 segments), and most frequently seized in Los Angeles (eight segments) and San Diego/San Ysidro (eight segments). Seizures of dead iguanas were made every year from 2004 to 2013.

Purpose of import

Seized shipments containing illegal *Iguana* items were imported for either personal or commercial purposes (Table 49). *Iguana* imports for personal purposes clearly outnumbered those for commercial purposes.

Table 49. Purposes of Iguana Imports by Segment

Rank	Purpose of Import	Number of Segments	Percentage of Iguana Segments
1	Personal	337	77.1%
2	Commercial	100	22.8%

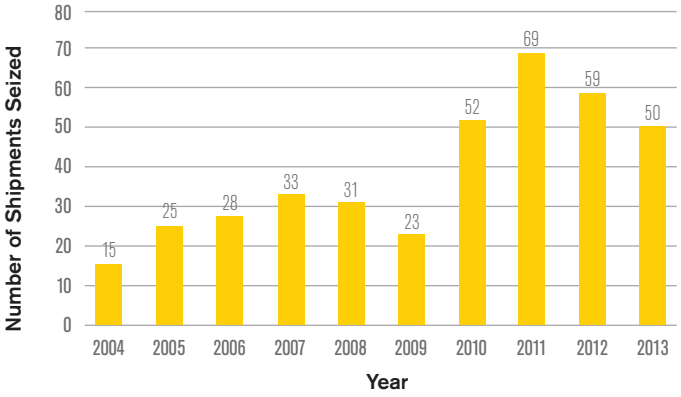
The 337 segments imported for personal purposes contained a total of 2,141 individual items and 567 pounds. Examples of items imported for personal purposes included 175 eggs, 34 pounds of meat and 15 dead animals. Given that shipments containing eight or more items are presumed to be commercial, only 170 segments containing *Iguana* items would truly be considered "personal."[24]

In comparison, the 100 segments imported for commercial purposes contained a total of 1,624 individual items and 442 pounds. Examples of specimens imported for commercial purposes included 262 eggs, 179 pounds of meat and 40 dead animals.

Trends over time

Annually, the number of seized shipments involving *Iguana* items ranged from 15 to 69 (Fig. 15). Overall, the average number of seizures per year was 38.5. Prior to 2010, annual seizures ranged from 15 to 33, but from 2010 to 2013 annual seizures ranged from 50 to 69. Consequently, when the seizures are considered in five-year increments, the average number between 2004 and 2008 was 26.4, but jumped to an average of 50.6 in between 2009 and 2013. The year with the fewest number of shipments seized was 2004, while 2011 was the year with the highest number of shipments seized.

Fig. 15. Seizures Containing Iguana Items 2004-2013



Seizures of *Iguana* shipments ranged from zero to 15 in any given month. March had the highest average number of seizures (8.1 seizures on average), followed by April (4.8 seizures on average). September had the lowest average number of seizures (1.2 seizures on average), followed by November (1.3 seizures on average). The month with the absolute highest number of seizures was March 2011 (15 seizures). Twenty-four months saw no seizures of *Iguana* whatsoever, including the month of May from 2005 to 2007.

6

Interpreting the Trends: Discussion and Conclusions

THE SIX DIFFERENT DATA ANALYSES conducted for this report—the general analysis that identified overall trends and the five genus-specific analyses—resulted in a number of conclusions and raised additional questions.

THE TOP TRADE ROUTES: WHAT DO THEY REALLY SHOW?

Examining the top trade route from each portion of the analysis provided vital information. The most common trade route identified in the general analysis of the entire data set was from Mexico to El Paso. Not surprisingly this trade route was also the top trade route for three of the five genus-level analyses: sea turtles, caiman and crocodiles (Table 50). In addition to highlighting El Paso as the most vulnerable point of entry, these analyses also indicated Miami and Los Angeles are ports of entry susceptible to shipments containing illegal wildlife exported from Latin America. However, the frequency with which Mexico emerged as a country of export raised questions about the role of Mexico as an export country.

Table 50. Top Trade Routes by Data Set

Data Group	Country of Export	Port of Entry	Percentage of Shipments in Data Set
All	Mexico	El Paso, TX	22.6%
Conch	Haiti	Miami, FL	40.7%
Sea turtles	Mexico	El Paso, TX	33.9%
Caimans	Mexico	El Paso, TX	44.9%
Crocodiles	Mexico	El Paso, TX	79.0%
Iguanas	Mexico	Los Angeles, CA	27.0%

Mexico was the top country of export in all but one of the analyses (queen conch) (Table 51), raising the question of whether shipments exported from Mexico actually originated in Mexico or were sent to Mexico from a third-party country (Table 51). These numbers indicated that perhaps Mexico is a hub for shipments coming from other parts of the Latin American region before being sent to the United States.

Since it would have been difficult for the data to include information about whether the shipments originated in the country of export or in a third-party country, the next best indicator is where the *contents* of the shipments originated. Along these lines, out of the 2,729 segments that

made up the 919 shipments exported from Mexico, 99 contained items known to have been sourced from other countries. These 99 segments that contained items sourced from countries other than Mexico were found in 73 shipments.

Table 51. Top Country of Export by Data Set

Data Set	Top Country of Export	Percentage of Shipments from Data Set
All	Mexico	48.1%
Conch	Haiti	42.2%
Sea turtles	Mexico	42.7%
Caimans	Mexico	70.3%
Crocodiles	Mexico	93.7%
Iguanas	Mexico	63.9%

While this is not an exact indicator—and some shipments may have contained items sourced from Mexico in addition to items sourced from countries other than Mexico—it demonstrated that as many as 73 of the 919 shipments exported from Mexico may actually have come from a third-party country before being exported from Mexico to the United States. In fact, the number of shipments exported from Mexico that may have come from third-party countries could be as high as 776, if shipments containing segments with items from unknown countries of origin are included.

VOLUME: WHAT ITEMS DO CONSUMERS DEMAND?

It became apparent in this analysis that calculations based on the number of shipments or number of segments were sometimes an inadequate indicator of the volume of products being discussed.[i] Making a volume comparison on a shipment by shipment basis, or even a segment by segment basis, was difficult, so volume was compared on an overall basis. Table 52 shows the volume of items seized throughout the data for the top-ten wildlife descriptions as sorted by the number of segments containing those items. A couple of observations stood out when comparing the volume of items.

First, the volume of meat seized was far greater than the volume of any other item (Table 52). In addition, although the description "eggs" was ranked sixth overall in terms of number of segments, the number of eggs seized in terms of volume (9,128)

Table 52. Top 10 Wildlife Descriptions by Segment

Rank	Wildlife Description	Number of Segments	Volume*
1	Shoe (including boots)	919	5,760
2	Meat	861	68,481 pounds
3	Small leather product	657	4,793
4	Shells	344	3,704
5	Feathers	315	3,238
6	Eggs	295	9,128
7	Dead animals	280	4,048
8	Live animals	227	3,063
9	Coral	193	2,226
10	Skins	145	1,719

Table 53. Top 10 Wildlife Descriptions by Volume

Rank	Demanded Product	Volume*
1	Meat	68,481 pounds
2	Eggs	9,128
3	Shoes	5,760
4	Small leather products	4,793
5	Dead animals	4,048
6	Scientific specimen	4,002
7	Shells	3,704
8	Live animals	3,568
9	Feathers	3,238
10	Medicinal products	2,279

*By weight or number of items

[i]One segment could range in volume from one to 1,500 individual items, with the average being 13 items per segment; one segment could range in volume from one to 40,000 pounds, with the average being 106 pounds per segment.

would actually rank second after meat (Table 53).

Second, it became clear that some items with descriptions *not* found in the top-ten wildlife descriptions actually had a higher volume of products than those with a top-ten descriptor. This led to an additional analysis of the items ranked by volume (compare Tables 52 and 53).

Not only did this analysis of the volume of items contained in the shipments provide a better idea of the magnitude of the illegal wildlife trade, it also provided a better picture of the size of the demand for particular products.[ii] When sorted by volume, the ranking of the top-ten wildlife descriptions change and two new descriptions are seen: scientific specimens and medicinal products (Table 53).

Understanding the consumer market specific to the United States is incredibly important when working to reduce domestic demand. Using the volume of items seized was the best indicator of consumer demand for different items. This volume analysis provides a possible starting point for demand-reduction campaigns that target the products with the highest demand.

The items with the highest demand appear to be meat, eggs and shoes (Table 53). Campaigns tailored to those products will likely be more effective at reducing consumer demand than campaigns aimed at reducing demand for wildlife products in general.

PURPOSE OF IMPORT: SHOULD PERSONAL IMPORTS HAVE PRIORITY?

After completing both the general analysis and the genus-level analyses, it was clear that imports for personal purposes were seized much more frequently than imports made for commercial purposes (Table 54). The *Caiman* analysis was the only one that revealed an equal distribution of personal and commercial imports. All other analyses showed that more than 68 percent of the segments imported for personal purposes. These numbers for imports made for personal purposes raised a couple of questions.

Table 54. Percentage of Segments Imported for Personal Purposes by Data Set

Data Set	Number of Segments	Percentage Imported for Personal Purpose
All	3,623	68.2%
Conch	610	81.3%
Sea turtles	597	89.3%
Caimans	275	49.3%
Crocodiles	460	88.8%
Iguanas	337	77.1%

1. Because the importers themselves declared the purpose of the imports, was the import truly for personal purposes?

Using the rubric put in place by the U.S. government that shipments are presumed to be for commercial use if they contain eight or more items, the contents of imports labeled as "personal" were examined.[1] Of the 3,623 segments labeled as "personal," 606 segments contained eight or more items. Thus, 16.7 percent of all segments labeled as personal contained a volume of items that would actually be presumed commercial (Table 55).

[ii]In this instance live animals and animals that died during shipment are both counted towards the total volume of live animals because they were intended to be traded alive.

Table 55. Percentage of Segments Mislabeled as Personal by Data Set

Data Set	Segments Labeled as Personal	Segments Presumed Personal	Percentage of Mislabeling
All	3,623	3,017	16.8%
Conch	610	515	15.6%
Sea turtles	597	415	30.5%
Caimans	275	262	4.4%
Crocodiles	460	455	1.1%
Iguanas	337	170	49.6%

Interestingly, the misuse of the "personal" purpose label was much higher in some genera than in others. For instance, segments containing iguana items were presumably mislabeled as personal almost 50 percent of the time, while segments containing crocodile items fell within the proper definition of personal almost 100 percent of the time (Table 55). Examples of the contents found in single shipments declared as "personal" but containing eight items or more include 500 caiman shoes, 200 queen conch shells, 175 iguana eggs, 136 parrot feathers, 135 dove trophies, 100 caracara feathers, 98 arapaima scales and 93 anaconda bone carvings.

2. Because the number personal purpose imports outranked commercial purpose imports in each of the analyses and because a fair number of imports declared for personal purposes contained arguably commercial-level contents, should wildlife inspectors prioritize imports declared as personal more evenly with imports declared as commercial?

While wildlife inspectors focus most of their attention on commercial shipments, it appears from this data analysis that the majority of shipments containing illegal wildlife items were actually declared as personal imports. This could potentially indicate that more effort should be directed toward examining imports declared for personal purposes than those declared for commercial purposes.

However, on closer consideration, the volume of items contained in the commercial imports far outstripped the volume in personal imports, making even a single commercial-level seizure more effective than a personal-level seizure. In addition, personal imports containing commercial volumes of items were not frequent enough to warrant changing the shipment target priorities. Thus, even though the number of segments declared as personal purpose imports was much higher than those for commercial purpose imports, the volume of the contents seized in commercial-level seizures indicates that commercial imports should remain the priority for inspection. However, this also shows that personal imports create a lot of work for inspectors and it would not be unreasonable for individuals to contribute to the import/export fees.

WILD-SOURCED ITEMS: ARE WILD POPULATIONS MOST AT RISK?

Throughout all of the analyses wild-sourced items were much more prominent than captive-sourced items (Table 56). In all the analyses, apart from *Caiman*, more than 95 percent of the segments contained items sourced from the wild (5,104 segments). Segments containing

Table 56. Percentage of Wild-Sourced Segments by Data Set

Data Set	Number of Segments	Percentage Sourced from the Wild
All	5,104	95.8%
Conch	746	99.4%
Sea turtles	657	98.3%
Caimans	483	86.7%
Crocodiles	499	96.0%
Iguanas	435	99.5%

wild-sourced items represented at least 45,585 individual items and 81,294 pounds. Of those items, 39,047 items and 50,828 pounds were known to be sourced from wild populations in Latin America. If items from unknown wild populations are included, these numbers can reach as high as 45,865 items and 80,950 pounds. These figures provide overwhelming evidence that wild populations in the region are most threatened by illegal trade.

ANNUAL TRENDS: IS THE TOTAL NUMBER OF SEIZURES PER YEAR TIED TO THE ECONOMY?

A three-year trend in the annual number of seizures was mirrored in all six of the analyses (Table 57). From 2008 through 2010, the annual number of seizures showed a dip in the number of annual seizures. While the size of the variance between the years differed for each analysis, it was still discernible.

Table 57. Number of Seizures from 2008–2010 by Data Set

Data Set	Number of Seizures 2008	Number of Seizures 2009	Number of Seizures 2010
All	342	244	438
Conch	37	35	93
Sea turtles	68	35	38
Caimans	36	19	49
Crocodile	36	8	36
Iguanas	31	23	52

One possible explanation for the consistent drop in the number of seizures in 2009 is the economic downtown in 2008. Because this data contained information on imports to the United States, and thus reflected U.S. consumer demand, it is possible that on the heels of the economic crisis in 2008 U.S. demand for illegal wildlife products declined in much the same way that demand for legal commodities fell.

7

Addressing the Crisis: Recommendations

THE REVIEW OF EXISTING U.S. POLICIES and programs targeting wildlife trafficking, the achievements of the U.S. government to date in combating it and the analysis of illegal wildlife imports from Latin America (including Mexico and the Caribbean) to the United States conducted for this report identified a number of law enforcement challenges. This concluding section offers recommendations for addressing these challenges geared not only to the U.S. government, but also to the private sector and the general public.

FOR THE FEDERAL GOVERNMENT

The overarching issue facing the federal government in combating wildlife trafficking is a lack of sufficient funding for enforcement. It is critical that the funding issue be addressed first and foremost. The following recommendations address that need as well as ways to augment personnel, improve training, strengthen policy and gathering and sharing information and using it tactically.

Funding

- **Secure additional funding to hire more law enforcement officers, either through a new import/export fee structure, a significant increase in the U.S. Fish and Wildlife Service (FWS) Office of Law Enforcement budget, or a new user-fee program for travelers.**

The United States has identified wildlife trafficking as an "international crisis" and should fund efforts to combat it accordingly. Following the Executive Order 13684 on Combating Wildlife Trafficking issued by President Obama in 2013, the FWS Office of Law Enforcement budget was increased from $57 million to $64 million in FY 2014.[1] While this was a significant increase, it was neither sufficient for the tasks put before the FWS following the Executive Order, nor the highest the budget had ever been.[2]

Additional funding should be sought to hire additional wildlife inspectors. Hiring more wildlife inspectors will also necessitate hiring additional special agents and funding will need to be sought from a variety of sources. Given that wildlife inspectors are currently funded only through the import/export fee structure, a three-fold change in funding structure is recommended.

First, the import/export license fees under the existing system should be significantly increased. The last fee increase was in 2008, prior to the Executive Order. It is logical that a new rule be published to increase these fees once again, especially given the well-documented increases in the volume of legal and illegal wildlife trade.

Second, supplemental funding should be sought through appropriations specifically to hire more wildlife inspectors. Because wildlife inspectors currently only rely on fees paid by users, the revenue can fluctuate annually based on use. Securing funding through appropriations, such as it is for hiring special agents, would provide a funding baseline for wildlife inspectors irrespective of user fees. Additionally, since the "user pays" system of the import/export fee structure applies only to legal users of the system, funding sought through appropriations would help offset the cost of illegal users who avoid contributing fees but greatly contribute to the workload of the wildlife inspectors. Although appropriations funding has not previously been used to fund wildlife inspectors, there is a compelling need for a secondary source of funding given the current circumstances.

Third, a new user-fee system for international travelers entering the United States should be created and implemented. U.S. Customs and Border Protection (CBP) has had a user fee in place since 1986 for all passengers arriving to the United States from outside territories. Currently, this user fee stands at $5.50 and is added to every applicable passenger airline ticket.[3] Imposing a similar, minimal user-fee system to those same passengers earmarked for FWS would provide a steady funding source for both wildlife inspectors and special agents. Some may argue that wildlife imports for personal reasons make up only a fraction of the trade and a user-fee system would thus be punitive. However, the analysis conducted for this report showed that 68.2 percent of all data entries were declared for personal purposes, indicating that individual passengers do, in fact, contribute greatly to the workload of wildlife inspectors.

Although wildlife trafficking was officially deemed an "international crisis" in 2013,[4] the United States has yet to make moves to properly fund the front line of defense against this illegal activity: wildlife inspectors. This is of great concern and should be re-evaluated at the earliest possible opportunity.[5] Even if additional funding is secured at the earliest—FY 2017—four years will have passed since the Executive Order was issued. Time is most certainly of the essence in combating wildlife trafficking, and the United States needs to properly fund the activities set out in the National Strategy and the Implementation Plan to see results.

Personnel

- **Increase the number of wildlife inspectors at ports of entry nationwide, especially high-volume ports.**

Ideally at least one full-time wildlife inspector would be stationed at each port of entry recognized by FWS, designated and nondesignated.

Surprisingly, following the release of the Executive Order in 2013, the number of wildlife inspectors employed by the FWS actually dropped for various reasons. In FY 2013, FWS had 140 wildlife inspectors; in FY 2014 the number dropped to 130.[6] This downward trend in number of personnel is plainly at odds with the administration's Executive Order.

- **Expand the Detector Dog Program to augment the capabilities and effectiveness of wildlife inspectors already on the ground.**

A stopgap measure for improving the effectiveness of existing wildlife inspectors is to expand the use of dogs trained to sniff out illegal wildlife shipments. The Dog Detector Program has proven successful at high-volume ports of entry. The dogs have significantly increased inspection abilities and have been well received.[7] Dogs are able to examine packages at a pace one hundred times faster than their human counterparts.[8] The Dog Detector Program was initially started as an alternative staff multiplier and should now be utilized to the fullest capacity given its success.[9]

- **Expand the FWS agent/attaché program to include a post in Mexico.**

Currently, the only attaché in Latin America is stationed in Peru. While this placement is logical because Peru was the top country of export in South America, an additional placement in Mexico would also be strategic given that Mexico was overwhelmingly the top country of export for all of Latin America and the Caribbean. By placing FWS attachés in targeted regional hotspots, a program that has already been designed and implemented by FWS will have a greater impact on combating wildlife trafficking

Training

- **In the training course for inspectors, focus on the identification of taxonomic groups frequently misidentified or identified only to a broad taxonomic level.**

Our analysis showed that lack of specificity in identifying wildlife creates a large data gap on species with varying trade protections. For example, the species code triggering the family *Cheloniidae* (sea turtles) was one of the most frequently used species codes, but it is actually a family taxon and provides no information on the genus or species level. Having the training course emphasize the identification of items often derived from species within *Cheloniidae* would be a targeted way to increase the accuracy of a significant number of data entries. Focused training on species frequently identified on the family level, or misidentified on the genus level, would increase the accuracy of data gathering within an already existing mechanism, the LEMIS database. Training tools for these activities are already available and FWS could use them with minimal cost.[10]

Policy

- **Reaffirm the original intent of the Executive Order and the National Strategy to enhance domestic efforts to combat wildlife trafficking in the United States.**

The Executive Order and National Strategy speak to enhancing domestic efforts to combat wildlife trafficking and looking for ways to increase the law enforcement capacity of the FWS.[11] Unfortunately, many of the efforts thus far have focused on programs, training and personnel increases abroad, as highlighted in the Implementation Plan.[12] For maximum impact in combating wildlife trafficking, however, the United States must focus on its own ports of entry in addition to supporting capacity building and training workshops abroad.[13]

Until the United States is no longer one of the top consumers of trafficked wildlife, more efforts and resources should be channeled to domestic demand reduction. With agencies like FWS, CBP, APHIS and NOAA and facilities like the FWS Forensic Laboratory, the United States is the country best equipped to combat wildlife trafficking, but it is also one of the largest consumer markets. This puts the United States in a unique position to potentially have significant impact on wildlife trafficking simply by focusing on domestic law enforcement and domestic consumer demand.

- **Publicly declare and reaffirm that wildlife trafficking is a serious crime under the UNTOC definition and subsequently commit to making the necessary legislative changes to that effect.**

Although the United States co-sponsored the original draft resolution at the CCPCJ encouraging member states to declare wildlife trafficking a serious crime, it has not done so in an official capacity. Even though stronger sentences are being handed down for wildlife crimes, it is important for the United States to make an official declaration.[14] This would signal to the international community, consumers, and traffickers that use the United States as either a destination market or a transit country that the United States is treating wildlife trafficking with the same legal consequences as other transnational crimes.

- **Request that the CITES Secretariat enter into negotiations to make Haiti, the second most common country of export for illegal wildlife shipments entering the United States, a member of CITES.**

To stem the flow of illegal wildlife shipments being imported to the United States, the United States needs the cooperation of Haiti. Negotiations should include support for Haiti to become a signatory to CITES and to subsequently implement the regulatory mechanisms required by CITES.

- **Continue treating wildlife trafficking as a high priority in all departments of the U.S. government.**

FWS cannot succeed in this fight alone and needs continued support and assistance from other agencies. The administration should seek ways of assuring the durability and sustainability of the goals and strategies currently being implemented to combat wildlife trafficking. Specifically, all agencies should begin to prioritize domestic law enforcement efforts and redouble efforts to reduce the market for illegal wildlife products in the United States.

Information gathering and analysis

- **Identify the top ports of entry for seizures from other regions of the world.**

The administration should use the methodology of this report to evaluate import data from other regions and identify the top ports of entry for illegal wildlife seizures from each region around the world. Ultimately wildlife inspectors should be stationed full time at all 64 ports of entry, but the evaluative approach would pinpoint needs and provide a guide for prioritizing usage of additional resources.

- **Conduct an analysis of illegal wildlife exports leaving the United States to provide additional information useful in identifying gaps in detection and deterrence.**

Because the United States is often used as a transit country for illegal wildlife and wildlife products, knowing where, when and how often illegal wildlife is exported from the United States would be as valuable as knowing what is entering.

- **Share findings on illegal wildlife shipment patterns and trade routes with the private sector.**

The National Strategy calls for the government to foster collaborative relationships with private industry to combat wildlife trafficking. One way is to share information such as commonly used trade routes and ports that industry, particularly national and international transport companies, would benefit from knowing.

- **Based on data and analysis, station wildlife inspectors with expertise in certain species and items at the ports through which those items most frequently pass.**

Placing inspectors with expertise in particular species at ports where that expertise is most needed would increase the likelihood of those species and their byproducts being seized.

- **Build on the success of the LEMIS database by supporting and potentially adopting additional data-gathering mechanisms for legal and illegal wildlife trade.**

Supporting similarly detailed data gathering mechanisms in other countries would create the opportunity to cross-reference the source, destination and origin of illegal wildlife shipments between countries.

FOR THE PRIVATE BUSINESS SECTOR

Transportation industry

- **Work cooperatively with FWS law enforcement to combat wildlife trafficking.**

Where appropriate, ban the transportation of particular wildlife species or wildlife products consistently found in illegal trade from Latin America. As illegal wildlife often travels alongside legal wildlife, refusing to participate in the transportation of imperiled species and their derivatives is important.

U.S. tour operators

- **Do not include questionable wildlife attractions on Latin American tour itineraries.**

Avoid locations that offer "wildlife encounters" or feature captive animals taken from the wild and retail outlets that sell illegal wildlife products. In the alternative, tour operators can promote sustainable interactions with wildlife in their natural habitat.

U.S. businesses

- **Ensure that any imported wildlife products sourced from the Latin American region are legal.**

Make sure all products come from sustainable sources and are accompanied by proper importation paperwork. Actively pursuing the correct legal documentation is just as important as avoiding the consumption of illegal products and makes it easier for law enforcement and customs officials to processes imports and exports.

FOR THE U.S. PUBLIC

- **Raise awareness about wildlife trafficking.**

Lack of awareness can lead to inadvertent acquisition of illegal wildlife and wildlife products from Latin America and elsewhere. Public education on illegal wildlife, the forms it takes and its presence in the United States is important. Members of the public can help raise awareness among family and friends.

- **Promote and practice conscious consumerism.**

Individuals can educate themselves about which species are protected so they can avoid consuming or purchasing illegal wildlife or wildlife products. Consumers can also learn about products that appear legal but could actually contain illegally sourced wildlife. In addition, consumers should pay attention to labeling to avoid purchasing items containing protected species. If the source of a product is unknown or uncertain, avoiding the purchase is best practice.

- **Practice responsible tourism.**

By carefully choosing destinations, activities, and purchases, well-informed tourists can support eco-tourism and avoid contributing to wildlife trafficking. Research the tour company to ensure that it employs sustainable practices. Avoid participating in activities involving captive animals that may have been trafficked. Be informed about the souvenirs that may contain illegal wildlife by reading the *Buyer Beware* brochure and the *Wildlife in the Jewelry Trade* factsheet published by FWS[15] and studying displays with examples of confiscated wildlife and wildlife products located in international airports.

CONCLUSION

There are no simple, unilateral solutions to combating wildlife trafficking. A comprehensive, unified and systematic approach to these crimes is required by international, regional, and national entities. However, to this day, new enforcement measures to reduce wildlife trafficking have been modest, investigative capacity inadequate, and funding limited.

The analysis conducted for this study revealed that the United States has many strengths in this fight, including data collection capacities beyond almost any other country, dedicated but far too few wildlife inspectors and high-level political recognition of the serious threats posed by wildlife trafficking. However, the United States, as this report has noted, has focused most of its recent attention on the illegal wildlife trade in Africa and Asia.

The United States can and must do better by improving its analysis of collected data on imports, increasing funding for efforts to combat wildlife trafficking, particularly for law enforcement and wildlife inspection, and focusing on reducing the role the United States plays as a massive consumer of illegal wildlife products.

Appendix A: Detailed Methodology

DATA SORTING

To fully understand the numerous ways in which the data was sorted throughout the analysis portion of this report it is necessary to understand the information received. Each segment represented the seizure of a particular item. A single seizure involving multiple items appeared as multiple segments—one segment for each kind of item. In addition, each segment could represent any number or volume of items. The analysis in this report refers to numbers of shipments seized and also numbers of segments.

All segments were received in Microsoft Excel format organized into 25 categories of possible information. The categories of information included: the control number, the species code, the genus, the species, the subspecies, the specific name, the generic name, a wildlife description, the quantity, the unit measurement, the country of origin, the country of import/export, the purpose, the source, the action taken, the disposition, the ship date, whether it was an import or an export, the port of entry, the Convention on International Trade in Endangered Species (CITES) listing status, the Endangered Species Act (ESA) listing status, the Migratory Bird Treaty Act (MBTA) listing status, the Wild Bird Conservation Act (WBCA) listing status, and the Marine Mammal Protection Act (MMPA) listing status.[1] Notably, not all categories of information were filled in for each segment. All categories are explained below with the assistance of the U.S. Fish and Wildlife Service's Office of Law Enforcement Import/Export Key (FWS Key). (Provided in full in Appendix B.)

Category Descriptions

Control Number. The control number is a 10-digit LEMIS identification number that is assigned to each import declaration form (i.e., each shipment). To be clear, multiple segments can make up a single shipment which is represented by one control number, i.e., multiple segments have the same control number indicating that those segments were found together in one shipment and that multiple types of items were seized in a single shipment. Thus, the number of shipments is lower than the number of segments. The first four digits of the control number refer to the year, followed by five digits that identify the particular shipment.

Species Code. The species code is a four-character code that indicates the species present in the import. This code then automatically generates the entries for both the genus and species categories. The import declaration form accompanying the shipment should indicate the species contained, which the wildlife inspector translates into a species code and records. When the import declaration form omits the species, the wildlife inspector determines the species involved. Import declaration forms without any species-specific information can trigger inspection. LEMIS has a large database of species codes available, though not every species currently has a code. When no species code is available, a wildlife inspector may assign a code based on personal evaluation of the specimen. When an item cannot be identified down to the species level, the family or genus may be entered in the code instead. Of course inserting a partial species code will dilute the specificity of the species code and result in incomplete or altered entries in the genus or species categories. Unfortunately, use of partial species codes also creates inaccurate segments. Each year additional species codes are added to LEMIS in an attempt to retain accurate information.

[1]Note that the original data set included information regarding the listing status of the species under MBTA, WBCA, and MMPA as well. This information was not used in the data analysis.

Genus. The genus category is automatically generated in the LEMIS database from the species code entered. Theoretically, the genus category refers to the taxonomic genus of the specimen seized. However, when the species code is incomplete or generalized, the genus category is altered and can produce more general taxonomic information such as the family or order.

Species. The species category is also generated automatically in the LEMIS database from the species code. Theoretically, the species category refers to the taxonomic species of the specimen seized. However, like the genus category, when the species code is incomplete or generalized, the species category is altered. In the data received, alterations to the species code resulted in blank entries and entries of the word "species" in the species category.

Subspecies. The subspecies category is also generated automatically in the LEMIS database from the species code. However, the subspecies is only generated when the species code is filled out to the fourth character. As some species do not have subspecies, this category was often empty.

Specific Name. The specific name category refers to the common name of the species or subspecies. For example, for the species *Crocodilus fuscus*, the specific name was "brown caiman." Commonly the specific name category was only filled out for species identified down to the subspecies level. As this level of identification was infrequent the specific name category was blank for the majority of the data points.

Generic Name. The generic name category has no official database of names. This category can best be described as referring to groups of species often thought of as one. For example, the generic name category of "sea turtles" includes various species of sea turtles from different taxonomic genera. Thus, the generic name category is not scientifically organized, but is a more general grouping of different types of species. The generic name is assigned at the discretion of the wildlife inspector.

Wildlife Description. The wildlife description category describes the items seized using one of the 94 descriptions provided by the FWS Key. These set description codes range from very specific (such as "piano with ivory keys") to vague (such as "medicinal part or product"). For some of the description codes the FWS Key provides a short description or examples of items falling under that particular code (see Appendix B).

Quantity. The quantity category provides the quantity of unit measurements of each item.

Unit Measurement. The unit measurement category includes any one of 12 possible codes provided in the FWS Key. The available unit measurements are: square centimeters, cubic centimeters, centimeters, grams, kilograms, liters, square meters, cubic meters, milligrams, milliliters, meters, and number of specimens. Unfortunately, the unit measurement varied for seizures involving the same kinds of items—making it difficult to directly compare quantities and volumes. For example, some seizures of macaw feathers were recorded using the number of feathers; others were recorded using the weight of the combined feathers. While both seizures involved macaw feathers, it was difficult to compare 15 individual feathers to one kilogram of feathers.

Country of Origin. The country of origin category refers to the country in which the item(s) found in the shipment originated. To be clear, the country of origin does not refer to the country

in which the shipment originated. The country of origin included countries outside Latin America because the shipments included items derived from species native to other parts of the world. Additionally, the country of origin may be a country outside the species range because the item originated from farming or breeding operations. In many cases, the item's country of origin was not known with certainty because the seizures involved illegal contents. Because 71.2 percent of the segments contained items known to have originated in the same country from which they were exported, this percentage is used when the origin country is unknown to estimate how many segments contained items that could be from the known country of export.

Country of Export. The country of export category refers to the country that exported the shipment to the United States. At times the country of export was the same as the item's origin country, but not always. The parameters of this data set required that all countries of export be countries in Latin America.

Purpose. The purpose category refers to the declared purpose of the import and uses one of 12 purposes codes found in the FWS Key. The possible purposes for import are: breeding in captivity or artificial propagation, educational, botanic gardens, hunting trophies, law enforcement/judicial/forensic use only, biomedical research, personal, circuses/traveling exhibitions, scientific, commercial, reintroduction/introduction into the wild, and zoos. The purpose of the import is declared by the importer on the import-declaration forms.

Source. The source category refers to the source of the item. The FWS Key provides nine possible sources of items: plants that are artificially propagated (parts and derivatives), animals bred in captivity, CITES Appendix I animals or plants commercially bred or propagated in CITES-registered facilities, animals born in captivity or animals that do not qualify as captive-bred under CITES, confiscated or seized specimens, pre-convention specimens, specimens originating from ranching operations, source unknown specimens, and specimens taken from the wild. The source "animals bred in captivity" is described in the FWS Key as animals born in captivity to parents that mated in captivity—in contrast to "animals born in captivity," which refers to an animal born in captivity to parents that mated in the wild. For the purposes of this analysis, the term "wild-sourced" refers to items from unknown sources, items sourced from the wild and items with no source code. The term "captive-sourced" refers to all other sources.

Action. The action category refers to the action taken with regards to the shipment. The only two possible actions are cleared or refused. The parameters of this data set requested only shipments that were refused for import. Thus, "refused" is the action for every data point in this set.

Disposition Code. The disposition code refers to the disposition of the shipment. The four possible disposition codes in the FWS Key are: abandoned, cleared, reexport or seized. The parameters of the data in this report requested only shipments that were "seized."

Disposition Date. The disposition date refers to the date the disposition of the shipment was decided. This date can be the same as the shipment date, but can also be later. For example, a shipment received on May 1, 2015, could have a disposition date of May 1, 2015, if it was immediately inspected or a disposition date of May 10, 2015, if inspection took longer.

Shipment Date. The shipment date refers to the date the shipment was received at the port of entry. The shipment date is the date referenced whenever the data is sorted according to date.

Import/Export. The import/export category refers to whether the shipment was being imported to the United States or exported from the United States. This data set includes only shipments that were being imported to the United States, thus all data points indicate "import" in this category.

Port of Entry. The port of entry refers to the port at which the shipment entered the United States. The FWS Key includes 72 port of entry codes. Sixty-four ports of entry refer to specific cities or airports. The remaining eight ports of entry indicate only the region in which the shipment entered the United States (e.g. Region 1, Region 2), referring to the eight regions in which the Fish and Wildlife Service operates.[2] Currently, there are 18 designated ports of entry and 46 nondesignated ports of entry. The designated ports of entry refer to ports of entry that allow imports of wildlife. These ports are always staffed with wildlife inspectors. Nondesignated ports of entry are ports where the importation of wildlife is allowed only under special circumstances accompanied by an exception permit. There are both nondesignated staffed ports and nondesignated nonstaffed ports. The 20 nondesignated staffed ports have full-time wildlife inspectors, even though importers need an exception permit to import wildlife through those ports. The 26 nondesignated nonstaffed ports do not have full-time wildlife inspectors. When a wildlife shipment receives a permit to come through a nonstaffed nondesignated port a wildlife inspector from a nearby staffed port (either designated or staffed nondesignated) covers the nonstaffed port.

Listing Status. The remaining five categories refer to the listing status of the species seized, at the time of seizure. In the case of CITES, this category indicates the level of listing: Appendix I, Appendix II or Appendix III. In the case of the ESA, this category indicates the level of listing: threatened or endangered. In the case of the MBTA, the WMCA, and the MMPA this category simply indicates whether the species was listed or not. It was possible for a species to be listed under multiple regulations.

KNOWN INCONSISTENCIES

It is not uncommon to have inconsistencies in large data sets, particularly ones based on reporting. Discrepancies common to trade reporting include inconsistencies in the use of terms, trade reported at different taxonomic levels, inconsistencies in the units of measure, and missing or incomplete data.[3] All of these discrepancies, among others, were present in this data set.

Inconsistencies in Reporting

Reporting inconsistencies included the use of terms generally, but specifically in the common name and generic name categories; the use of different taxonomic levels in the species code, which was then reflected in the genus and species categories; and the use of different unit measurements.

First, the most general inconsistency in the use of terms was the use of both plural and single forms of the same term. While this may not appear to be a large inconsistency, when the data was sorted for a particular term it was necessary to include all forms of the term. An additional issue with the use of terms was the common name category. Many species go by multiple common

[2]Because the eight ports of entry identified on a regional level did not provide any information with regards to specific port of entry they are not discussed in the analyses.

[3]United Nations Environment Programme World Conservation Monitoring Centre, "Analysis of CITES Trade: Central America and the Dominican Republic," United Nations Environment Programme and United States Department of Interior (Cambridge, 2014).

names. However, when the data was sorted for a particular common name, segments containing the same species but entered under one of the other common names would be left out. This was generally avoided by using the genus or species category instead. Also, the generic name category presented the most inconsistency in the use of terms. The generic name category, which is provided at the discretion of the wildlife inspector, is not taken from a set list of categories. As a result, the category names differed greatly—from general ("all elephants") to specific ("boa constrictor"), from singular ("owl") to plural ("owls"), and from wide-ranging ("all cetaceans") to vague ("parrots etc."). Furthermore, the generic-name categories were not organized based on any sort of taxonomic information and segments with species from various genera and species were often given the same generic name category.

Second, there was inconsistent use of taxonomic levels in the species code. Because the species code triggers the information for both the genus and the species categories, this inconsistency was reflected across three categories. When the species code was incomplete or altered, the genus and species were also incomplete or altered. In the species category, when the last digit of the species code was a question mark (e.g. "PUT?") the genus category was filled in, but the species category would come up with the word "species." Along the same lines, the species category would be left blank if the third and fourth digits of the species code were zeros (e.g. "EL00"), question marks (e.g. "CD??"), dollar signs (e.g. "CT??"), or hash tags (e.g. "BL##"). The species category would also come up blank if the four-digit species code was actually a family or order—not a genus (e.g. "CHEL" which generates the family taxon *Cheloniidae* in the genus category and no information in the species category). In these instances, both the species and the genus categories were inconsistent. The frequency with which the species code triggered altered or incomplete entries in the two other categories was high. The number of segments with the word "species" or with blanks in the species category numbered 2,526, or 47.4 percent of the entire data set. Interestingly, there were also instances in which different species codes resulted in the same taxonomic information. In these cases, the inconsistency was only between the species codes themselves. However, filtering for a specific species code would not then provide the same results as filtering for the genus or species.

Third, the inconsistent use of unit measurements was present throughout the data. Certain items, such as meat and feathers, were recorded using more than one unit measurement making it difficult to compare the volume contained in those seizures.[4] Some unit measurements were impossible to compare, such as "70 meat specimens" against "25 pounds of meat." In addition, within the weight unit measurements the use of kilograms and pounds appeared to be interchangeable. This also presented an issue when comparing volume, however for the purposes of this analysis all weight measurements were generally converted in to pounds.

Missing and Incomplete Data

The data received in response to the two FOIA requests only included information on wildlife seizures with contents not involved in open or ongoing investigation at the time of the request. Understandably any seizures of illegal wildlife being used by law enforcement at the time of the request were excluded or withheld. However, a number of seizures meeting the parameters of the requested data self-reported by the Office of Law Enforcement more than two years ago were not included in the data set received. The explanation for withholding these seizures is unknown. The exact number of seizures withheld from the data is unclear, but can be estimated to some degree.

[4]Seizures of meat and feathers were recorded using four different unit measurements: pounds, kilograms, grams and number of specimens.

One way to estimate how much data may have been withheld was by using the investigative statistics published by the FWS Office of Law Enforcement. Between 2003 and 2014 (the date range of this data), FWS reported an annual investigative caseload ranging anywhere from 9,982 to 15,128 cases.[5] Wildlife cases generally take anywhere between a few days to a few months to close—meaning the data used for this report could be incomplete as far back as early 2014 or late 2013. However, sometimes it is possible that a wildlife case could take over a year to close. Likely much of the investigate caseload—particularly the more recent cases—are ongoing and some undoubtedly involve wildlife or wildlife parts illegally imported from Latin America. However, it is unknown how many of these cases were withheld from the data set for this reason.

Another strategy used to estimate the number of missing shipments was to compare specific seizures of wildlife or wildlife parts and products noted in the FWS Office of Law Enforcement annual reports to the data set received. Often these reports mentioned high-profile seizures. Frequently the details of the reports were sufficient to compare to the data set received for this analysis. Where the annual reports noted a seizure falling within the parameters of the requested data but did not have corresponding data, it was assumed that this data was withheld. For example, in FY 2013 to 2014 wildlife inspectors in El Paso seized more than 10,700 tegu lizard leather and skin pieces exported from Mexico.[6] The data received shows no seizures of tegu leather of any size or any skin pieces during this time frame. In fact, the largest seizure of tegu items in the entire data set was 600 tegu leather shoes seized in Laredo in 2013.

While the more recent seizures may be withheld due to ongoing investigations, there were seizures reported in the FWS annual reports as far back as 2004 that were not present in the data. For example, in 2004 wildlife inspectors seized 21,000 queen conch shells imported from Haiti and seized in Brownsville, Texas.[7] However, the data received for 2004 does not include any seizures of queen conch shells of that volume—the highest recorded seizure for that year is 39 queen conch shells imported from Argentina and seized in San Juan. In 2005 wildlife inspectors seized 205 sea turtle eggs imported from El Salvador to New York.[8] The data received has no corresponding seizure—the highest volume of sea turtle eggs in one seizure for that year was 127 and the only seizure of sea turtle eggs made in New York was imported from Costa Rica. In 2007, wildlife inspectors seized 67 crocodile teeth in a shipment from Peru to Miami.[9] However, the data received for this analysis did not include any entries for seizures of crocodile teeth in 2007. In fact, only two seizures of crocodile teeth were present in the entirety of the data set. These two seizures were made in 2008 and 2011 and included less than 23 teeth. It is far less likely that these older seizures are part of ongoing investigations begging the question: why were they excluded from the data received, particularly when the Office of Law Enforcement publicly highlighted them?

The third strategy used to estimate the number of seizures missing from the data was to compare news reports and press releases regarding wildlife seizures coming into the United States from Latin America. Press releases issued by the U.S. Department of Justice indicated that between February 16 and April 13, 2013, wildlife inspectors at the port of Calexico seized approximately 483 pounds of totoaba swim bladders.[10] However, the data received reveals a total of 14 pounds and two dead totoaba seized at Calexico in all of 2013. It is large discrepancies such as this one that indicate the gaps in the data received.

---

[5]U.S. Fish and Wildlife Service, *Office of Law Enforcement Annual Reports 2003–2014*.

[6]U.S. Fish and Wildlife Service, *Office of Law Enforcement Accomplishments 2013–2014*, 43.

[7]U.S. Fish and Wildlife Service, *Office of Law Enforcement Annual Report FY 2004*, 12.

[8]U.S. Fish and Wildlife Service, *Office of Law Enforcement Annual Report FY 2005*, 8.

[9]U.S. Fish and Wildlife Service, *Office of Law Enforcement Annual Report FY 2007*, 9.

[10]The U.S. Attorney's Office Southern District of California, "Massive Trade in Endangered Species Uncovered; U.S. Attorney Charges 7 With Smuggling Swim Bladders of Endangered Fish Worth Millions on Black Market; Officials See Trend," Press Release, April 24, 2013.

Because the data received is incomplete it almost surely under-represents the true magnitude of seized shipments of endangered and threatened wildlife imported to the United States from Latin America.

CONSTRAINTS OF DATA

While the data received was incredibly detailed there were certain constraints regarding the information the data could provide. Most of these constraints were a result of the fact that these shipments contained *illegal* wildlife and information that would be provided on legal wildlife import declaration forms was either missing or questionable.

One overarching constraint of the data was that certain categories were taken from import declaration forms that were self-reported by the importers, such as the item's source or country of origin. Often times it was the import declaration form that initially flagged the shipment for inspection and subsequent seizure. This resulted in some categories containing many "unknown" entries. It also resulted in certain categories, such as the source, containing information that was questionable—items sourced from the wild in countries where the species is not native, for example, scarlet macaw feathers declared to be sourced from wild populations in the United States).

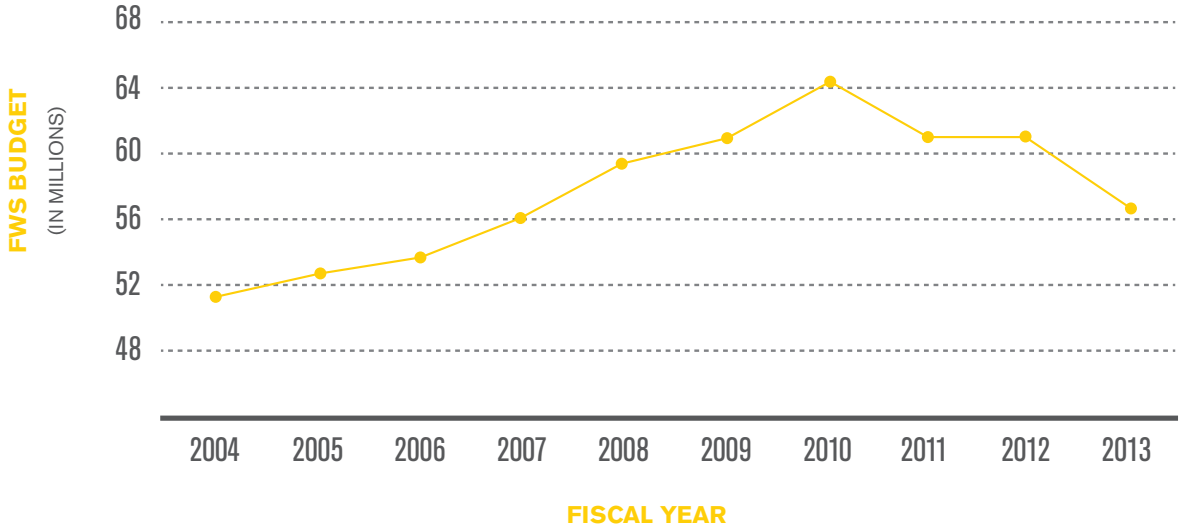
Another constraint was that the data failed to indicate where the shipment originated or its final destination. The data provided information about which country exported the shipment directly in to the United States, but there was no way of knowing if that shipment had come from a third party country before being exported to the United States. Thus, the data can only show the last location of the shipment before it was illegally imported to the United States. In the same vein, the data does not indicate the final destination of the shipment, i.e., whether it was destined for the United States or using the United States as a transit country.

Lastly, given that this data focuses on wildlife trafficking, when a species was listed in different categories depending on population segment it was difficult to determine if an item was sourced from one of the protected populations or one of the unprotected ones. For the data in this data set this issue was present in segments recorded as listed as "both" endangered and threatened under the ESA. While this showed that the species was protected, it did not show the level of protection—making it difficult to get a sense of how many endangered versus threatened species are being traded. Although no specific examples can be given, it is also possible that species were misidentified in the CITES category based on certain populations being in Appendix I when the genus itself may be listed in Appendix II. The FWS Forensics Lab can use DNA testing to identify species, but the lab is not generally used for the contents of small seizures.[11]

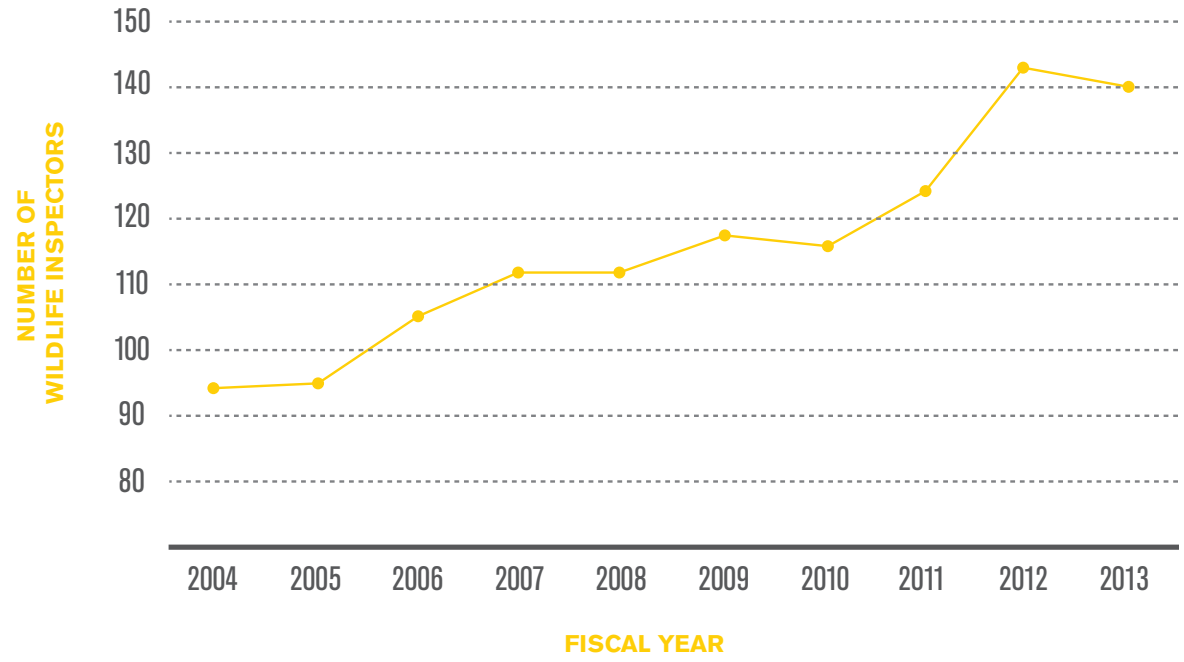
[11]Rosen, Jody, "Animal Traffic," *New York Times*, September 5, 2014, accessed June 10, 2015, http://tmagazine.blogs.nytimes.com/2014/09/05/animal-trafficking-black-market/.

Appendix B: U.S. Fish and Wildlife Service Budget and Wildlife Inspectors 2004–2013

FWS Annual Budget



Number of FWS, Office of Law Enforcement Wildlife Inspectors



Appendix C: U.S. Fish and Wildlife Service Office of Law Enforcement Import/Export Key 2015

Wildlife Description

BAL Baleen
BAR Bark (raw, dried, powdered, unprocessed)
BOC Bone product or carving
BOD Dead animal (whole animal)
BON Bones (including jaws, but not skulls)
BOP Bone pieces (not manufactured)
BUL Bulbs, corms or tubers
CAL Calipees (turtle cartilage for soup)
CAP Carapaces (raw or unworked)
CAR Carvings (other than bone, horn or ivory)
CAV Caviar (unfertilized dead processed sturgeon or paddlefish eggs)
CHP Chips (timber)
CLA Claw (including talon)
CLO Cloth
COR Coral (raw or unworked, excluding live or coral rock)
CPR Coral products
CUL Cultures of artificially propagated plants
CUT Cuttings (plant cuttings or divisions)
DEA Dead specimen (live specimen that died during shipment)
DER Derivative (except those included elsewhere)
DPL Dried plants
EAR Ear (except when part of whole trophy)
EGG Egg (whole dead or blown excluding caviar)
EGL Eggs (live)
ESH Eggshell – raw or unworked
EXT Extracts
FEA Feathers
FIB Fiber (plant fiber, tennis racket string)
FIG Fingerlings (juvenile fish for the aquarium trade, hatchery or released)
FIN Fin – (fresh, frozen or dried fins or parts)
FLO Flowers
FOO Foot
FPT Flower pot (made of tree fern or other plant fiber)
FRU Fruit
GAB Gall bladders
GAL Gall (bile)
GAR Garment (excluding shoe or trim)
GEN Genitalia (castrate and dried penis)
GRS Graft rootstocks
HAI Hair
HAP Hair product (including paint brushes, etc.)
HOC Horn carving (including horn or antler products)
HOP Horn pieces (not manufactured)
HOR Horn (substantially whole including antlers)
IJW Ivory jewelry
IVC Ivory carvings
IVP Ivory pieces (not manufactured, includes scraps)
JWL Jewelry (other than ivory jewelry)
KEY Ivory piano key (# of keys)
LEG Frog legs
LIV Live specimens (live animals or plants)
LOG Logs and saw logs (all wood in the rough for processing into sawn wood, pulpwood or veneer)
LPL Leather product (large manufactured including briefcase, suitcase, furniture)
LPS Leather product (small manufactured including belt, wallet, watchband)
LVS Leaves
MEA Meat
MED Medicinal part or product
MUS Musk
NES Nest (including product)
OIL Oil
PIV Piano with ivory keys (# of pianos)
PLA Plates of fur skins (include rugs if made from several skins)
PLY Plywood (3 or more sheets of wood glued and pressed one on another)
POW Powder
ROC Live Rock (e.g., Coral Rock)
ROO Root, (dead)
RUG Rugs (rugs if made from one skin only)
SAW Sawn wood (sawn lengthwise or produced by profile-chipping; normally exceeds 6mm in thickness)
SCA Scale (turtle, other reptile, fish, pangolin)
SDL Seedling
SEE Seed
SHE Shell (mollusk, raw or unworked)
SHO Shoe (including boots)
SID Side (including flank, except tinga frame)
SKE Skeleton (substantially whole)
SKI Skin (substantially whole, including tinga frames)
SKP Skin piece (raw or tanned including scraps)
SKU Skull
SOU Soup
SPE Specimen (scientific or museum)
SPR Shell product (mollusk or turtled)
STE Stems (plant stems)
SWI Swim bladder (hydrostatic organ, including isinglass, sturgeon glue)
TAI Tails
TEE Teeth (excluding tusk)
TIM Timber (raw except log or sawn wood)
TRI Trim (shoe, garment, or decorative)
TRO Trophy (all the parts of one animal)
TUS Tusks (substantially whole tusks, worked or not)
UNS Unspecified
VEN Veneer (thin layers of wood of uniform thickness, usually less than 6mm)
WAX (including ambergris)
WNG Wing
WPR Wood product (including furniture, rainsticks)

Ports

01-Region 1
02-Region 2
03-Region 3
04-Region 4
05-Region 5
06-Region 6
07-Region 7
08-Region 8
AG-Agana
AL-Alcan
AN-Anchorage
AT-Atlanta
BA-Baltimore
BL-Blaine
BN-Buffalo
BO-Boston
BV-Brownsville
CA-Calais
CH-Chicago
CL-Cleveland
CP-Champlain
CX-Calexico
DE-Detroit
DF-Dallas/Forth Worth
DG-Douglas
DL-Derby Line
DN-Denver
DR-Del Rio
DS-Dunseith
DU-Dulles Int'l Airport
EA-Eastport
EL-El Paso
FB-Fairbanks
GP-Grand Portage
HA-Honolulu
HN-Houston
HO-Houlton
HS-Highgate Springs
IF-International Falls
JK-Jackman
JU-Juneau
LA-Los Angeles
LK-Lukeville
LO-Louisville
LR-Laredo
LV-Las Vegas
MC-McAllen
ME-Memphis
MI-Miami. FL
MP-Minneapolis./St. Paul
NF-Norfolk
NG-Nogales
NO-New Orleans
NW-Newark
NY-New York
PA-Philadelphia
PB-Pembina
PH-Port Huron
PL-Portal
PT-Portland
PX-Phoenix
RY-Raymond
SE-Seattle
SF-San Francisco
SJ-San Juan
SL-San Luis
SP-Saipan
SS-Sault Sainte Marie
SU-Sumas
SW-Sweetgrass
SY-San Diego/San Ysidro
TP-Tampa
XX-Unknown

Unit

C2 Square Centimeter
C3 Cubic Centimeters
CM Centimeters
GM Grams
KG Kilograms
LT Liters
M2 Square Meters
M3 Cubic Meters
MG Milligrams
ML Milliliters
MT Meters
NO Number of Specimens

Purpose

B Breeding in captivity or artificial propagation
E Educational
G Botanic gardens
H Hunting Trophies
L Law Enforcement/ Judicial/ Forensic use only
M Biomedical research
P Personal
Q Circuses/ travelling exhibitions
S Scientific
T Commercial
Y Reintroduction/ introduction into the wild
Z Zoos

Source

A Plants that are artificially propagated, parts and derivatives
C Animals bred in captivity (from parents that mated in captivity)
D CITES Appendix I animals or plants commercially bred or propagated in CITES registered facilities
F Animals born in captivity (from parents that mated in the wild) or animals that do not qualify as captive-bred under CITES
I Confiscated or seized specimens
O Pre-convention specimens
R Specimens originating from a ranching operation
U Source unknown (lack of information must be justified)
W Specimens taken from the wild

Action

C Cleared
R Refused

Disposition

A Abandoned
C Cleared
R Reexport
S Seized

Country

AD-Andorra
AE-United Arab Emirates
AF-Afghanistan
AG-Antigua & Barbuda
AI-Anguilla
AL-Albania
AM-Armenia
AO-Angola
AQ-Antarctica
AR-Argentina
AT-Austria
AU-Australia
AW-Aruba
AX-Aland Islands
AZ-Azerbaijan
BA-Bosnia-Herzegovina
BB-Barbados
BD-Bangladesh
BE-Belgium
BF-Burkina Faso
BG-Bulgaria
BH-Bahrain
BI-Burundi
BJ-Benin
BL-Saint Bathelemy
BM-Bermuda
BN-Brunei Darussalam
BO-Bolivia
BQ-Bonaire, Saint Eustatius, & Saba
BR-Brazil
BS-Bahamas
BT-Bhutan
BV-Bouvet Island
BW-Botswana
BY-Belarus
BZ-Belize
CA-Canada
CC-Cocos (keeling) Islands
CD-Democratic Republic of the Congo
CF-Central African Republic
CG-Congo
CH-Switzerland
CI-Cote d'Ivoire
CK-Cook Islands
CL-Chile
CM-Cameroon
CN-China
CO-Colombia
CR-Costa Rica
CU-Cuba
CV-Cape Verde
CW-Curacao
CX-Christmas Island
CY-Cyprus
CZ-Czech Republic
DE-Germany
DJ-Djibouti
DK-Denmark
DM-Dominica
DO-Dominican Republic
DZ-Algeria
EC-Ecuador
EE-Estonia
EG-Egypt
EH-Western Sahara
ER-Eritrea
ES-Canary Islands
ES-Spain
ET-Ethiopia
FI-Finland
FJ-Fiji
FK-Falkland Islands (Malvinas)
FM-Federated States of Micronesia
FO-Faeroe Islands
FR-France
GA-Gabon
GB-United Kingdom
GB-Ascension Island
GB-England
GB-Great Britain
GB-Ireland, northern
GB-Scotland
GB-Wales
GD-Grenada
GE-Georgia
GF-French Guiana
GG-Guernsey
GH-Ghana
GI-Gibraltar
GL-Greenland
GM-Gambia
GN-Guinea
GP-Guadeloupe
GQ-Equatorial Guinea
GR-Greece
GS-South Georgia & Sandwich Islands
GT-Guatemala
GW-Guinea-Bissau
GY-Guyana
HK-Hong Kong
HM-Heard Island & McDonald Islands
HN-Honduras
HR-Croatia
HT-Haiti
HU-Hungary
ID-Indonesia
IE-Ireland
IL-Israel
IM-Isle of Man
IN-India
IO-British Indian Ocean Territory
IQ-Iraq
IR-Islamic Republic of Iran
IS-Iceland
IT-Italy
JE-Jersey
JM-Jamaica
JO-Jordan
JP-Japan
KE-Kenya
KG-Kyrgyzstan
KH-Cambodia
KI-Kiribati
KM-Comoros
KM-Saint Kitts & Nevis
KP-Democratic People's Republic of Korea (North)
KR-Republic of Korea (South)
KW-Kuwait
KY-Cayman Islands
KZ-Kazakhstan
LA-Lao People's Democratic Republic
LB-Lebanon
LC-Saint Lucia
LI-Liechtenstein
LK-Sri Lanka
LR-Liberia
LS-Lesotho
LT-Lithuania
LU-Luxembourg
LV-Latvia
LY-Libyan Arab Jamahiriya
MA-Morocco
MC-Monaco
MD-Republic of Moldova
ME-Montenegro
MF-Saint Martin
MG-Madagascar
MH-Marshall Islands
MK-Macedonia
ML-Mali
MM-Myanmar (Burma)
MN-Mongolia
MO-Macao
MQ-Martinique
MR-Mauritania
MS-Montserrat
MT-Malta
MU-Mauritius
MV-Maldives
MW-Malawi
MX-Mexico
MY-Malaysia
MZ-Mozambique
NA-Namibia

Country (Continued)

NC-New Caledonia
NE-Niger
NF-Norfolk Island
NG-Nigeria
NI-Nicaragua
NL-Netherlands
NO-Norway
NP-Nepal
NR-Nauru
NU-Niue
NZ-New Zealand
OM-Oman
PA-Panama
PE-Peru
PF-French Polynesia (Tahiti)
PG-Papua New Guinea
PH-Philippines
PK-Pakistan
PL-Poland
PM-Saint Pierre & Miquelon
PN-Pitcairn
PT-Portugal
PW-Palau
PY-Paraguay
QA-Qatar
RE-Reunion
RO-Romania
RS-Serbia
RU-Russian Federation
RW-Rwanda
SA-Saudi Arabia
SB-Solomon Islands
SC-Seychelles
SD-Sudan
SE-Sweden
SG-Singapore
SH-Saint Helena, Ascension, and Tristan da
SI-Slovenia
SJ-Svalbard & Jan Mayen Islands
SK-Slovakia
SL-Sierra Leone
SM-San Marino
SN-Senegal
SO-Somalia
SR-Suriname
SS-South Sudan
ST-Sao Tome & Principe
SV-El Salvador
SX-Sint Maarten
SY-Syrian Arab Republic
SZ-Swaziland
TC-Turks & Caicos Islands
TD-Chad
TF-French Southern Territories
TG-Togo
TH-Thailand
TJ-Tajikistan
TK-Tokelau
TL-Timor-Leste
TM-Turkmenistan
TN-Tunisia
TO-Tonga
TR-Turkey
TT-Trinidad & Tobago
TV-Tuvalu
TW-Taiwan (Province of China)
TZ-United Republic of Tanzania
UA-Ukraine
UG-Uganda
US-United States
UY-Uruguay
UZ-Uzbekistan
VA-Holy See (Vatican City)
VC-Saint Vincent & The Grenadines
VE-Venezuela
VG-British Virgin Islands
VN-Vietnam
VS-Various
VU-Vanuatu
WF-Wallis & Futuna Islands
WS-Samoa, Western
XX-Unknown
YE-Yemen
YT-Mayotte
ZA-South Africa
ZM-Zambia
ZW-Zimbabwe
ZZ-High Seas

Appendix D: Listing Status of Top-10 Seized Species as per IUCN, CITES and ESA

Species	Scientific Name	IUCN Status	CITES Appendix	ESA Status
Hawksbill Sea Turtle	*Eretmochelys imbricata*	Critically endangered	Appendix I	Endangered
Green Sea Turtle	*Chelonia mydas*	Endangered	Appendix I	Both
Ocelot	*Leopardus pardalis*	Least concern	Appendix I	Endangered
African Elephant	*Loxodonta africana*	Vulnerable	Appendix I/II	Threatened
Boa Constrictor	*Boa constrictor*	None	Appendix I/II	None
Queen Conch	*Strombus gigas*	None	Appendix II	None
Common Caiman	*Caiman crocodilus*	Least concern	Appendix II	Threatened
Common Iguana	*Iguana iguana*	None	Appendix II	None
American Alligator	*Alligator mississippiensis*	Least concern	Appendix II	Threatened
Reticulated Python	*Python reticulatus*	None	Appendix II	None

Endnotes

CHAPTER 1

1. Sheldon Jordan. 2014. "Message from the Chair." INTERPOL Wildlife Crime Working Group Newsletter.

2. Justin Gosling, *The Global Response to Transnational Organized Environmental Crime*, Tuesday Reitano and Mark Shaw, eds., (The Global Initiative against Transnational Organized Crime, 2014), 1; James Bargent, "Eco-Trafficking in Latin America: The Workings of a Billion-Dollar Business," *InSight Crime*, July 7, 2014, accessed June 5, 2015. http://www.insightcrime.org/news-analysis/eco-trafficking-latin-america-billion-business; U.N. Environment Assembly of the United Nations Environment Programme, 1st Session. *Illegal trade in wildlife: the environmental, social and economic consequences for sustainable development* (UNEP/EA.1/INF.19). Information Note by the Secretariat. Nairobi, 2014, 2 ("The illegal trade in fauna has been estimated by different sources to be worth from $7 billion to $23 billion dollars annually…"); C. Nellemann et al., eds., *The Environmental Crime Crisis: Threats to Sustainable Development from Illegal Exploitation and Trade in Wildlife and Forest Resources* (United Nations Environment Programme, 2014), 7.

3. U.S. President. 2014. National Strategy for Combating Wildlife Trafficking, February 2014; Sheldon Jordan. 2014. "Message from the Chair." INTERPOL Wildlife Crime Working Group Newsletter.

4. James Bargent, "Eco-Trafficking in Latin America: The Workings of a Billion-Dollar Business," *InSight Crime*, July 7, 2014, accessed June 5, 2015. http://www.insightcrime.org/news-analysis/eco-trafficking-latin-america-billion-business.

5. Vanda Felbab-Brown, *The Disappearing Act: The illicit trade in wildlife in Asia* (Foreign Policy at Brookings, 2011), 6; "INTERPOL—Wildlife Crime Working Group," Description, accessed June 5, 2014 http://actionguide.info/m/orgs/430/; Sheldon Jordan. 2014. "Message from the Chair." INTERPOL Wildlife Crime Working Group Newsletter.

6. Sheldon Jordan. 2014. "Message from the Chair." INTERPOL Wildlife Crime Working Group Newsletter.

7. Liana Sun Wyler and Pervaze A. Sheikh, *International Illegal Trade in Wildlife: Threats and U.S. Policy* (Congressional Research Service, 2013), 14.

8. "Wildlife and Forest Crime: Overview," United Nations Office on Drugs and Crime, updated 2015, accessed June 5, 2015. http://www.unodc.org/unodc/en/wildlife-and-forest-crime/overview.html; Environmental Investigation Agency, *In Cold Blood: Combatting organised wildlife crime* (2014), 4.

9. TRAFFIC, "Halting Biodiversity Loss: Towards Sustainable Wildlife Trade in Central America" (a briefing paper aimed at decision makers about the significance of wildlife trade between the EU and Central America, undated), 1.

10. Ibid.

11. Liana Sun Wyler and Pervaze A. Sheikh, *International Illegal Trade in Wildlife: Threats and U.S. Policy* (Congressional Research Service, 2013), 3.

12. C. Nellemann et al. eds., *The Environmental Crime Crisis: Threats to Sustainable Development from Illegal Exploitation and Trade in Wildlife and Forest Resources* (United Nations Environment Programme, 2014), 7; National Strategy for Combating Wildlife Trafficking, February 2014; U.N. Environment Assembly of the United Nations Environment Programme, 1st Session. *Illegal trade in wildlife: the environmental, social and economic consequences for sustainable development* (UNEP/EA.1/INF.19). Information Note by the Secretariat. Nairobi, 2014, 7. ("The illegal trade in wildlife involves a wide range of flora and fauna, across all continents.")

13. James Bargent, "Eco-Trafficking in Latin America: The failures of the state," *InSight Crime*, July 8, 2014, accessed June 5, 2015. http://www.insightcrime.org/news-analysis/eco-trafficking-in-latin-america-the-failures-of-the-state.

14. Liana Sun Wyler and Pervaze A. Sheikh, *International Illegal Trade in Wildlife: Threats and U.S. Policy* (Congressional Research Service, 2013), 1; "Wildlife and Forest Crime: Overview," United Nations Office on Drugs and Crime, updated 2015, accessed June 5, 2015. http://www.unodc.org/unodc/en/wildlife-and-forest-crime/overview.html.

15. "Wildlife and Forest Crime: Target groups," United Nations Office on Drugs and Crime, Global Programme for Combatting Wildlife and Forest Crime, updated 2015, accessed June 5, 2015. http://www.unodc.org/unodc/en/wildlife-and-forest-crime/target-groups.html. (The UNODC has identified Central and Southern America and the Caribbean as amongst the regions which include source, transit and destination countries.)

16. "HSI Latin America Opposes Illegal Wildlife Trade," Humane Society International/Latin America, posted August 1, 2011, accessed June 5, 2015. http://www.hsi.org/world/latin_america/work/wildlife_trade/facts/hsi_la_illegal_wildlife_trade.html.

17. "Trade Background," TRAFFIC, accessed June 5, 2015. http://www.traffic.org/trade; Linda Pressly, "The country that blends endangered frogs," *BBC*, May 14, 2015, accessed June 5, 2015. http://www.bbc.com/news/magazine-32718813; "HSI Latin America Opposes Illegal Wildlife Trade," Humane Society International/Latin America, posted August 1, 2011, accessed June 5, 2015. http://www.hsi.org/world/latin_america/work/wildlife_trade/facts/hsi_la_illegal_wildlife_trade.html.

18. TRAFFIC, "Halting Biodiversity Loss: Towards Sustainable Wildlife Trade in Central America" (a briefing paper aimed at decision makers about the significance of wildlife trade between the EU and Central America, undated), 1.

19. "Wildlife and Forest Crime: Target groups," United Nations Office on Drugs and Crime, Global Programme for Combatting Wildlife and Forest Crime, updated 2015, accessed June 5, 2015. http://www.unodc.org/unodc/en/wildlife-and-forest-crime/target-groups.html. (The UNODC has identified Central and Southern America and the Caribbean as one of its priority regions for combating wildlife and forest crime.)

20. James Bargent, "Eco-Trafficking in Latin America: The Workings of a Billion-Dollar Business," *InSight Crime*, July 7, 2014, accessed June 5, 2015. http://www.insightcrime.org/news-analysis/eco-trafficking-latin-america-billion-business.

21. International Fund for Animal Welfare, *Criminal Nature: The Global Security Implication of the Illegal Wildlife Trade* (June 2013), 9 ("The United States is a major consumer nation in the wildlife trade black market and is considered by many to be the second-largest destination market for illegally trafficked wildlife in the world."); U.S. House of Representatives Subcommittee on Fisheries, Wildlife and Oceans, *Oversight Hearing on the Impact that U.S. Consumer Demand Is Having on the Illegal and Unsustainable Trade of Wildlife Products, and Ongoing and Proposed Efforts to Increase Public Awareness About These Impacts*, September 16, 2008 ("…The United States plays a leading role in the global wildlife trade. It is a primary destination for wildlife and wildlife products from legal and illegal sources."); Darryl Fears, "Overwhelmed U.S. port inspectors unable to keep up with illegal wildlife trade," *Washington Post*, October 17, 2014, accessed June 5, 2015. http://www.washingtonpost.com/national/health-science/overwhelmed-us-port-inspectors-unable-to-keep-up-with-illegal-wildlife-trade/2014/10/17/2fc72086-fe42-11e3-b1f4-8e77c632c07b_story.html. ("The United States ranks as the world's second-largest retail market behind China for legal artifacts crafted from the remains of wild animals…")

22. United Nations Office on Drugs and Crime, Preface to *The Globalization of Crime: A transnational organized crime threat assessment* (Vienna: United Nations Office on Drugs and Crime, 2010).

23. U.S. Department of the Interior, "Budget Justifications and Performance Information Fiscal Year 2015," (2014), LE-3.

24. International Fund for Animal Welfare, *Criminal Nature: The Global Security Implication of the Illegal Wildlife Trade* (June 2013), 9.

25. U.S. Fish and Wildlife Service, *Office of Law Enforcement Accomplishments 2013-2014*, 41 ("[Service inspectors] examined some 184,000 shipments in Fiscal Year 2013, and 180,000 in Fiscal Year 2014 – monitoring a $6.2 billion legal trade for compliance with wildlife laws."); Haken, Jeremy, *Transnational Crime in the Developing World* (Global Financial Integrity, 2011), 11 ("Illegal trade is estimated to be around one-third of the legal trade...").

26. "Trade Background," TRAFFIC, accessed June 5, 2015. http://www.traffic.org/trade.

27. James Bargent, "Eco-Trafficking in Latin America: The Workings of a Billion-Dollar Business," *InSight Crime*, July 7, 2014, accessed June 5, 2015. http://www.insightcrime.org/news-analysis/eco-trafficking-latin-america-billion-business.

28. C. Nellemann et al., eds., *The Environmental Crime Crisis: Threats to Sustainable Development from Illegal Exploitation and Trade in Wildlife and Forest Resources* (United Nations Environment Programme, 2014), 97 ("…consumer demand remains the most important driver of the illegal trade in wildlife."); National Strategy for Combating Wildlife Trafficking, February 2014 ("Increasing antipoaching and antitrafficking enforcement efforts will have only limited effect unless we work simultaneously to address the persistent market demand that drives this threat."); U.N. Environment Assembly of the United Nations Environment Programme, 1st Session. *Illegal trade in wildlife: the environmental, social and economic consequences for sustainable development* (UNEP/EA.1/INF.19). Information Note by the

Secretariat. Nairobi, 2014, 5 ("The most important and effective responses to addressing the illegal wildlife trade are those that cause a reduction in consumer demand.").

29. National Strategy for Combating Wildlife Trafficking, February 2014, 6.

30. United Nations Office on Drugs and Crime, *Wildlife and Forest Crime Analytic Toolkit Revised Edition* (New York: United Nations Office on Drugs and Crime, 2012), 170; United Nations Office on Drugs and Crime, *Key Findings of The Globalization of Crime: A transnational organized crime threat assessment* (Vienna: United Nations Office on Drugs and Crime, 2010).

31. Justin Gosling, *The Global Response to Transnational Organized Environmental Crime*, Tuesday Reitano and Mark Shaw, eds. (The Global Initiative against Transnational Organized Crime, 2014), 15.

32. United Nations Office on Drugs and Crime, *Wildlife and Forest Crime Analytic Toolkit Revised Edition* (New York: United Nations Office on Drugs and Crime, 2012), 4.

33. "Wildlife and Forest Crime: Global Programme," United Nations Office on Drugs and Crime, accessed June 5, 2015. http://www.unodc.org/unodc/en/wildlife-and-forest-crime/global-programme.html.

34. National Strategy for Combating Wildlife Trafficking, February 2014.

35. Ibid.

36. Liana Sun Wyler and Pervaze A. Sheikh, *International Illegal Trade in Wildlife: Threats and U.S. Policy* (Congressional Research Service, 2013), 1.

37. Environmental Investigation Agency, *In Cold Blood: Combatting organised wildlife crime* (2014), 4.

38. Liana Sun Wyler and Pervaze A. Sheikh, *International Illegal Trade in Wildlife: Threats and U.S. Policy* (Congressional Research Service, 2013), 12.

39. Vanda Felbab-Brown, *The Disappearing Act: The illicit trade in wildlife in Asia* (Foreign Policy at Brookings, 2011), 4.

40. "Introduction," IUCN Red List, accessed June 5, 2015. http://www.iucnredlist.org/about/introduction.

41. United Nations Office on Drugs and Crime, *The Globalization of Crime: A transnational organized crime threat assessment* (Vienna: United Nations Office on Drugs and Crime, 2010), 169; Linda Pressly, "The country that blends endangered frogs," *BBC*, May 14, 2015, accessed June 5, 2015 http://www.bbc.com/news/magazine-32718813; U.N. Environment Assembly of the United Nations Environment Programme, 1st Session. *Illegal trade in wildlife: the environmental, social and economic consequences for sustainable development* (UNEP/EA.1/INF.19). Information Note by the Secretariat. Nairobi, 2014, 2 ("The illegal trade in wildlife is particularly challenging as it involves multiple dimensions including poverty and governance, and is often hidden within legal trade. It also commonly involves the mixing of legal and illegal harvesting of resources.").

42. James Bargent, "Eco-Trafficking in Latin America: The Workings of a Billion-Dollar Business," *InSight Crime*, July 7, 2014, accessed June 5, 2015. http://www.insightcrime.org/news-analysis/eco-trafficking-latin-america-billion-business (in Colombia, legally exported caiman skins are often accompanied by illegal ones); Linda Pressly, "The country that blends endangered frogs," *BBC*, May 14, 2015, accessed June 5, 2015. http://www.bbc.com/news/magazine-32718813 (In Peru, legal shipments of aquarium fish often contained illegal frogs hidden in false bottoms.).

43. United Nations Office on Drugs and Crime, *The Globalization of Crime: A transnational organized crime threat assessment* (Vienna: United Nations Office on Drugs and Crime, 2010), 169.

44. United Nations Economic and Social Council, 47th Plenary Meeting, *Crime prevention and criminal justice responses to illicit trafficking in protected species of wild fauna and flora* (E/RES/2013/40). Resolution. Geneva, 2013.

45. C. Nellemann, et al. eds., *The Environmental Crime Crisis: Threats to Sustainable Development from Illegal Exploitation and Trade in Wildlife and Forest Resources* (United Nations Environment Programme, 2014), 97; "Wildlife and Forest Crime: Overview," United Nations Office on Drugs and Crime, updated 2015, accessed June 5, 2015 http://www.unodc.org/unodc/en/wildlife-and-forest-crime/overview.html.

46. U.N. Environment Assembly of the United Nations Environment Programme, 1st Session. *Illegal trade in wildlife: the environmental, social and economic consequences for sustainable development* (UNEP/EA.1/INF.19). Information Note by the Secretariat. Nairobi, 2014, 2.

47. Ibid., 1.

48. Haken, Jeremy, *Transnational Crime in the Developing World* (Global Financial Integrity, 2011), 11-14; "Wildlife and Forest Crime: Overview," United Nations Office on Drugs and Crime, updated 2015, accessed June 5, 2015. http://www.unodc.org/unodc/en/wildlife-and-forest-crime/overview.html ("Once an emerging threat, wildlife and forest crime today has transformed into one of the largest transnational organized criminal activities alongside drug trafficking, arms, and trafficking in human beings."); "Trade Background," TRAFFIC, accessed June 5, 2015. http://www.traffic.org/trade; World Wildlife Fund, Environmental Investigation Agency, and TRAFFIC, "Wildlife and Forest Crime CCPCJ 22," (report prepared for the 22nd Session of the Commission on Crime Prevention and Criminal Justice, Vienna, Austria, April 21, 2013) ("Wildlife and forest crime is the 4th largest transnational crime in the world…"); Jonathan Liljeblad. "The Elephant and the Mouse that Roared: The prospects of international policy and local authority in the case of

the Convention on International Species (CITES)," (PhD diss., University of Southern California, 2008), 18. ("As of 2007, the value has risen to approximately $15-25 billion per year, second in value behind only narcotics smuggling in terms of illegal black markets.")

49. United Nations Office on Drugs and Crime, Executive Summary to the *Wildlife and Forest Crime Analytic Toolkit Revised Edition* (New York: United Nations Office on Drugs and Crime, 2012).

50. C. Nellemann et al., eds., *The Environmental Crime Crisis: Threats to Sustainable Development from Illegal Exploitation and Trade in Wildlife and Forest Resources* (United Nations Environment Programme, 2014), 97; U.N. Environment Assembly of the United Nations Environment Programme, 1st Session. *Illegal trade in wildlife: the environmental, social and economic consequences for sustainable development* (UNEP/EA.1/INF.19). Information Note by the Secretariat. Nairobi, 2014, 7 ("Responses to the illegal trade in wildlife need to reflect the differentiated and shared characteristics of various supply chains…").

51. U.N. Environment Assembly of the United Nations Environment Programme, 1st Session. *Illegal trade in wildlife: the environmental, social and economic consequences for sustainable development* (UNEP/EA.1/INF.19). Information Note by the Secretariat. Nairobi, 2014, 7 ("Responses to the illegal trade in wildlife need to reflect the differentiated and shared characteristics of various supply chains…").

CHAPTER 2

1. "About Service Special Agents," U.S. Fish and Wildlife Service Office of Law Enforcement, last modified September 8, 2013, accessed June 5, 2015. http://www.fws.gov/le/special-agents.html.

2. U.S. Department of the Interior, "Budget Justifications and Performance Information Fiscal Year 2015," (2014), LE-3.

3. "About Service Wildlife Inspectors," U.S. Fish and Wildlife Service Office of Law Enforcement, last modified February 14, 2013, accessed June 5, 2015. http://www.fws.gov/le/wildlife-inspectors.html.

4. U.S. Department of the Interior, "Budget Justifications and Performance Information Fiscal Year 2015," (2014), LE-3.

5. U.S. Fish and Wildlife Service Office of Law Enforcement, "Law Enforcement At a Glance," (February 2014) (The Designated Ports include: Anchorage, Atlanta, Baltimore, Boston, Chicago, Dallas/Ft. Worth, Honolulu, Houston, Los Angeles, Louisville, Memphis, Miami, New Orleans, Newark, New York, Portland, San Francisco, and Seattle.).

6. "At Ports of Entry," Department of Homeland Security, Customs and Border Protection, accessed June 5, 2015. http://www.cbp.gov/border-security/ports-entry; U.S. Fish and Wildlife Service Office of Law Enforcement, "Law Enforcement At a Glance," (February 2014).

7. United Nations Office on Drugs and Crime, *The Globalization of Crime: A transnational organized crime threat assessment* (Vienna: United Nations Office on Drugs and Crime, 2010), 152.

8. "About Service Wildlife Inspectors," U.S. Fish and Wildlife Service Office of Law Enforcement, last modified February 14, 2013, accessed June 5, 2015. http://www.fws.gov/le/wildlife-inspectors.html.

9. Ibid.

10. Ibid.

11. "Port of Los Angeles—Torrance, California," U.S. Fish and Wildlife Service Office of Law Enforcement, last modified December 3, 2013, accessed June 5, 2015. http://www.fws.gov/pacific/lawenforcement/portla.html.

12. U.S. Fish and Wildlife Service Office of Law Enforcement, anonymous interview by author, May 22, 2015; Darryl Fears, "Overwhelmed U.S. port inspectors unable to keep up with illegal wildlife trade," *Washington Post*, October 17, 2014, accessed June 5, 2015. http://www.washingtonpost.com/national/health-science/overwhelmed-us-port-inspectors-unable-to-keep-up-with-illegal-wildlife-trade/2014/10/17/2fc72086-fe42-11e3-b1f4-8e77c632c07b_story.html (New York's John F. Kennedy International Airport has six wildlife inspectors.).

13. United States Fish and Wildlife Service, *Office of Law Enforcement Accomplishments 2013–2014*, 42.

14. Ibid.

15. Ibid.

16. Ibid.

17. "Port of Los Angeles—Torrance, California," U.S. Fish and Wildlife Service Office of Law Enforcement, last modified December 3, 2013, accessed June 5, 2015 http://www.fws.gov/pacific/lawenforcement/portla.html.

18. Ibid.

19. United States Fish and Wildlife Service, *Office of Law Enforcement Accomplishments 2013–2014*, 42.

20. "About Service Wildlife Inspectors," U.S. Fish and Wildlife Service Office of Law Enforcement, last modified February 14, 2013, accessed June 5, 2015. http://www.fws.gov/le/wildlife-inspectors.html.

21. U.S. Fish and Wildlife Service Office of Law Enforcement, anonymous interview by author, May 22, 2015.

22. Janey Fugate, "At Miami International Airport, it's a struggle to stop the wildlife smugglers," *Miami Herald*, August 1, 2014, accessed June 5, 2015. http://www.miamiherald.com/news/nation-world/article1978006.html.

23. U. S. Fish and Wildlife Service, *Office of Law Enforcement Accomplishments 2013–2014*, 42.

24. Janey Fugate, "At Miami International Airport, it's a struggle to stop the wildlife smugglers," *Miami Herald*, August 1, 2014, accessed June 5, 2015. http://www.miamiherald.com/news/nation-world/article1978006.html.

25. "About Us," Miami International Airport, accessed June 5, 2015 http://miami-airport.com/about_us.asp.

26. Ibid.

27. U.S. Fish and Wildlife Service Southwest Regional Office, anonymous interview by author, May 29, 2015.

28. "Border Crossing/Entry Data," United States Department of Transportation, Office of the Assistant Secretary for Research and Technology, Bureau of Transportation Statistics, accessed June 10, 2015. http://transborder.bts.gov/programs/international/transborder/TBDR_BC/TBDR_BC_Index.html.

29. Ibid.

30. Ibid.

31. The Editorial Board, "Wildlife Slaughter Goes Unabated," *The New York Times*, February 14, 2015, accessed June 10, 2015. http://www.nytimes.com/2015/02/15/opinion/sunday/wildlife-slaughter-goes-unabated.html.

32. U.S Fish and Wildlife Service, *Office of Law Enforcement Accomplishments 2013–2014*, 42 (This figure includes all shipments of wildlife imported to, exported from and transited through the United States. This figure does not include flora or indicate the number of shipments physically inspected).

33. Jonathan Liljeblad, "The Elephant and the Mouse that Roared: The prospects of international policy and local authority in the case of the Convention on International Species (CITES)," (PhD diss., University of Southern California, 2008), 76; Anonymous Interview, U.S. Fish and Wildlife Service, May 22, 2015.

34. Janey Fugate, "At Miami International Airport, it's a struggle to stop the wildlife smugglers," *Miami Herald*, August 1, 2014, accessed June 5, 2015. http://www.miamiherald.com/news/nation-world/article1978006.html; U.S. House of Representatives Subcommittee on Fisheries, Wildlife and Oceans, *Oversight Hearing on the Impact that U.S. Consumer Demand is Having on the Illegal and Unsustainable Trade of Wildlife Products, and Ongoing and Proposed Efforts to Increase Public Awareness About These Impacts*, September 16, 2008. (In 2008 wildlife inspectors were able to inspect 25 percent of wildlife shipments—a higher percentage than they are able to inspect today.)

35. Darryl Fears, "Overwhelmed U.S. port inspectors unable to keep up with illegal wildlife trade," *Washington Post*, October 17, 2014, accessed June 5, 2015. http://www.washingtonpost.com/national/health-science/overwhelmed-us-port-inspectors-unable-to-keep-up-with-illegal-wildlife-trade/2014/10/17/2fc72086-fe42-11e3-b1f4-8e77c632c07b_story.html. (Paul Chapelle, a special agent, said, "we don't have enough people to do what we have to do.")

36. U.S. Fish and Wildlife Service, *Office of Law Enforcement Annual Reports 1999–2014*.

37. Jonathan Liljeblad, "The Elephant and the Mouse that Roared: The prospects of international policy and local authority in the case of the Convention on International Species (CITES)," (PhD diss., University of Southern California, 2008), 17-18 ("[The illegal wildlife] market has grown in conjunction with the liberalization of the global economy, from an estimated annual $50-100 million in the 1980s…to potentially $5 billion in the 1990s. As of 2007, the value has risen to approximately $15-25 billion per year…"); The Editorial Board, "Wildlife Slaughter Goes Unabated." *The New York Times*, February 14, 2015. accessed June 5, 2015. http://www.nytimes.com/2015/02/15/opinion/sunday/wildlife-slaughter-goes-unabated.html (The illegal wildlife market has increase into a $20-billion-a-year industry.); C. Nellemann et al., eds., *The Environmental Crime Crisis: Threats to Sustainable Development from Illegal Exploitation and Trade in Wildlife and Forest Resources* (United Nations Environment Programme, 2014), 7. ("The illegal trade in fauna and flora has been estimated by different sources to be worth $7-23 billion annually.")

38. U.S. Fish and Wildlife Service, *Office of Law Enforcement Annual Report FY 2004*, 33. (In FY 2004, FWS reports 95 wildlife inspectors on staff.)

39. U.S. Fish and Wildlife Service, *Office of Law Enforcement Accomplishments 2013–2014*, 41 U.S. Fish and Wildlife Service Office of Law Enforcement, "Law Enforcement At a Glance," (February 2014).

40. The Editorial Board, "Wildlife Slaughter Goes Unabated." *The New York Times*, February 14, 2015, accessed June 5, 2015. http://www.nytimes.com/2015/02/15/opinion/sunday/wildlife-slaughter-goes-unabated.html.

41. U.S. Fish and Wildlife Service Office of Law Enforcement, anonymous interview of wildlife inspector by author, May 22, 2015.

42. United Nations Office on Drugs and Crime, *Wildlife and Forest Crime Analytic Toolkit Revised Edition* (New York: United Nations Office on Drugs and Crime, 2012), 177 ("…some countries—albeit a very small number, maintain national databases that record all incidents of wildlife and forest offenses, as well as details of all successful and unsuccessful prosecutions").

43. Justin Gosling, *The Global Response to Transnational Organized Environmental Crime*, Tuesday Reitano and Mark Shaw, eds., (The Global Initiative against Transnational Organized Crime, 2014), 8 (emphasis added).

44. Justin Gosling, *The Global Response to Transnational Organized Environmental Crime*, Tuesday Reitano and Mark Shaw,

eds. (The Global Initiative against Transnational Organized Crime, 2014), 8.

45. "Law Enforcement History: 1976-Present," U.S. Fish and Wildlife Service Office of Law Enforcement, last modified February 13, 2014, accessed June 10, 2015, http://www.fws.gov/le/history-1976-present.html (The Law Enforcement Management Information System became operational in 1983).

46. Data from the LEMIS database can be accessed by the public through a Freedom of Information Act request, as described below in Section IV.A(1); "Wildlife Trade Tracker," WWF and TRAFFIC, accessed June 10, 2015. http://wildlifetradetracker.org/ (The Wildlife Trade Tracker is public use of the LEMIS database that plots the seizure of shipments upon entry into the United States); Schlaepfer et. al., "Challenges in Evaluating the Impact of the Trade in Amphibians and Reptiles on Wildlife Populations," *BioScience* 55 no. 3 (March 2005): 257 (a scientific research paper that used the LEMIS database).

47. United Nations Office on Drugs and Crime, *Wildlife and Forest Crime Analytic Toolkit Revised Edition* (New York: United Nations Office on Drugs and Crime, 2012), 80.

48. Ibid., 80.

49. Ibid., 182.

50. Ibid., 82.

51. Ibid., 180.

52. Justin Gosling, *The Global Response to Transnational Organized Environmental Crime*, Tuesday Reitano and Mark Shaw, eds. (The Global Initiative against Transnational Organized Crime, 2014), 40-43.

53. United Nations Office on Drugs and Crime, *Wildlife and Forest Crime Analytic Toolkit Revised Edition* (New York: United Nations Office on Drugs and Crime, 2012), 182-183.

54. Ibid.,182.

CHAPTER 3

1. Executive Order 13684—Combating Wildlife Trafficking, July 1, 2013.

2. U.S. Department of State, "Year in Review: Highlights from Implementing the U.S. National Strategy for Combatting Wildlife Trafficking," (2014).

3. United Nations Environment Assembly of the United Nations Environment Programme, 1st Session. *Illegal trade in wildlife: the environmental, social and economic consequences for sustainable development* (UNEP/EA.1/INF.19). Information Note by the Secretariat. Nairobi, 2014, 2.

4. Executive Order 13684—Combating Wildlife Trafficking, July 1, 2013.

5. National Strategy for Combating Wildlife Trafficking, February 2014.

6. U.S. Department of State, "Year in Review: Highlights from Implementing the U.S. National Strategy for Combating Wildlife Trafficking," (2014).

7. The White House Office of the Press Secretary, "Fact Sheet: U.S. Support for Combating Wildlife Trafficking," (August 4, 2014).

8. National Strategy for Combating Wildlife Trafficking: Implementation Plan, February 2015.

9. National Strategy for Combating Wildlife Trafficking, February 2014.

10. Darryl Fears, "Overwhelmed U.S. port inspectors unable to keep up with illegal wildlife trade," *Washington Post*, October 17, 2014, accessed June 5, 2015. http://www.washingtonpost.com/national/health-science/overwhelmed-us-port-inspectors-unable-to-keep-up-with-illegal-wildlife-trade/2014/10/17/2fc72086-fe42-11e3-b1f4-8e77c632c07b_story.html.

11. National Strategy for Combating Wildlife Trafficking, February 2014; Written Testimony of Joshua Busby before the U.S. House of Representatives, Committee on Foreign Affairs, Subcommittee on Terrorism, Nonproliferation, and Trade on *Poaching and Terrorism: A National Security Challenge*, April 22, 2015 ("…all of these measure to improve the awareness of the networks that traffic these products, the geography of poaching incidents, the connections to security outcomes, and then punishments for wildlife crimes will be for naught without successful efforts to change the demand for these products…").

12. U.N. Environment Assembly of the United Nations Environment Programme, 1st Session, *Illegal trade in wildlife: the environmental, social and economic consequences for sustainable development* (UNEP/EA.1/INF.19). Information Note by the Secretariat. Nairobi, 2014, 5.

13. National Strategy for Combating Wildlife Trafficking, February 2014.

14. National Strategy for Combating Wildlife Trafficking, February 2014.

15. Executive Order 13684 – Combating Wildlife Trafficking, July 1, 2013.

16. Executive Order 13684 – Combating Wildlife Trafficking, July 1, 2013.

17. National Strategy for Combating Wildlife Trafficking, February 2014, 9.

18. Implementation Plan, 21-22.

19. National Strategy for Combating Wildlife Trafficking, February 2014.

20. Implementation Plan, 23 (One progress point stated that "national campaign and targeted sub-campaigns [were] launched in 2015."); The White House Office of the Press Secretary, "Fact Sheet: U.S. Support for Combating Wildlife Trafficking," (August 4, 2014) (This fact sheet indicates that government involvement in national campaigns may have been limited to funding such campaigns.).

21. National Strategy for Combating Wildlife Trafficking: Implementation Plan, February 2015.

22. United Nations Office on Drugs and Crime, *Wildlife and Forest Crime Analytic Toolkit Revised Edition* (New York: United Nations Office on Drugs and Crime, 2012), 171.

23. United Nations Commission on Crime Prevention and Criminal Justice, 22nd Session, (E/2013/30). Report. New York 2013.

24. United Nations Convention against Transnational Organized Crime, September 29, 2003, Art. 2(b).

25. United Nations Convention against Transnational Organized Crime, September 29, 2003, Art. 18, Art. 19.

26. United Nations Economic and Social Council, 47th Plenary Meeting, *Crime prevention and criminal justice responses to illicit trafficking in protected species of wild fauna and flora* (E/RES/2013/40). Resolution. Geneva, 2013.

27. United Nations Economic and Social Council, 47th Plenary Meeting, *Crime prevention and criminal justice responses to illicit trafficking in protected species of wild fauna and flora* (E/RES/2013/40). Resolution. Geneva, 2013.

28. United Nations General Assembly, 69th Session, Tackling illicit trafficking in wildlife (A/RES/69/314). Resolution. New York, 2015.

29. National Strategy for Combating Wildlife Trafficking, February 2014.

30. The White House Office of the Press Secretary, "Fact Sheet: U.S. Support for Combating Wildlife Trafficking," (August 4, 2014).

31. United States v. Zhifei Li, 2:13-cr-00552-ES-1 (D. N.J. 2014) (Zhifei Li admitted to being the organizer of a wildlife smuggling conspiracy illegally trafficking rhinoceros horns between the United States and China. He was sentenced to 70 months of incarceration.); United States v. Michael Slattery, Jr., 1:13-cr-00615-JG-1 (E.D.N.Y. 2014) (Michael Slattery, a British citizen, plead guilty to conspiracy to violate the Lacey Act for buying and selling black rhinoceros horns in the United States and was sentenced to 14 months of incarceration.); United States v. Patty Chen, 4:13-cr-00771-JST-1 (N.D. Calif. 2014) (Patty Chen was sentenced to three-years of probation after violating the Lacey Act by illegally importing wildlife products into the United States from Ecuador.); United States v. Nathaniel Swanson, 2:13-cr-00138-MJP-1 (W.D. Wash. 2014) (Nathaniel Swanson plead guilty to conspiracy to smuggle various turtle and reptile species from the United States to Hong Kong and was sentenced to 1 year and 1 day of incarceration.).

32. The Lacey Act of 1900, 16 U.S.C. §§ 3371-3378 (The criminal penalties under the Lacey Act impose a maximum term of imprisonment of not more than 5 years.); The Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1544. (The criminal penalties under the Endangered Species Act impose a maximum term of imprisonment of not more than 1 year.)

CHAPTER 4

1. United Nations Office on Drugs and Crime, *The Globalization of Crime: A transnational organized crime threat assessment* (Vienna: United Nations Office on Drugs and Crime, 2010), 152.

2. Jonathan Liljeblad, "The Elephant and the Mouse that Roared: The prospects of international policy and local authority in the case of the Convention on International Species (CITES)," (PhD diss., University of Southern California, 2008), 39-40.

3. "The Designated Ports of Entry," U.S. Fish and Wildlife Service, available at www.fws.gov/ole. Shipments of illegal wildlife and wildlife products were seized at all 18 Designated Ports.

4. U.S. Fish and Wildlife Service Office of Law Enforcement, "Law Enforcement At a Glance," (February 2014) (The Non-Designated Staffed ports refer to the list on the Law Enforcement: At a Glance document. The Non-Designated Ports of Entry at which imports of illegal wildlife from the Region were seized are: Agana, Buffalo, Brownsville, Calais, Detroit, Denver, Dulles Int'l Airport, El Paso, Laredo, Minneapolis, Nogales, Pembina, San Juan, San Diego/San Ysidro, and Tampa.).

5. "Ports Importation and Exportation Wildlife," United States Fish and Wildlife Service Office of Law Enforcement, last modified March 29, 2013, accessed June 10, 2015. http://www.fws.gov/le/ports-contact-information.html (The Non-Designated Non-Staffed Ports refer to all other ports listed on the U.S. Fish and Wildlife Service website. Imports of illegal wildlife from the Region were seized at the following Non-Designated Non-Staffed Ports: Calexico, Douglas, Del Rio, Las Vegas, McAllen, Philadelphia, Phoenix, and San Luis.).

6. "Scheduled Freight Tonne—Kilometres," International Air Transport Association, accessed June 16, 2015. http://www.iata.org/publications/Pages/wats-freight-km.aspx (In 2014 FedEd ranked first for scheduled freight tonnes with 16,020 million tonnes.).

7. "Welcome to 'the Matrix': At FedEx's sorting hub, 1 night, 1.5M packages," CNET, July 12, 2015, accessed June 16, 2015. http://www.cnet.com/news/at-fedex-sorting-packages-1-5-million-at-a-time/ (FedEx processes between 1.3-1.5 million packages through its World Hub in Memphis, TN on a daily basis.).

8. "UPS Worldport Facts," United Parcel Service Pressroom, accessed June 16, 2015. https://pressroom.ups.com/pressroom/ContentDetailsViewer.page?ConceptType=FactSheets&id=1426321566696-701.

9. Importation, Exportation, and Transportation of Wildlife, 50 C.F.R. 14.4. ("There is a presumption that eight or more similar unused items are for commercial use.")

10. "How CITES works," Convention on International Trade in Endangered Species of Wild Fauna and Flora, accessed June 10, 2015. http://cites.org/eng/disc/how.php ("Appendix II includes species not necessarily threatened with extinction, but in which trade must be controlled in order to avoid utilization incompatible with their survival.").

11. Convention on International Trade in Endangered Species of Wild Fauna and Flora, "CITES suspends trade in queen conch shellfish," Press Release (October 1, 2003), accessed June 10, 2015, http://www.cites.org/eng/news/pr/2003/031001_queen_conch.shtml.

12. "Queen conch (*Strombus gigas)*," NOAA Fisheries Office of Protected Resources, last modified November 5, 2014, accessed June 10, 2015, http://www.nmfs.noaa.gov/pr/species/invertebrates/queenconch.htm.

13. Convention on International Trade in Endangered Species of Wild Fauna and Flora, "CITES National Export Quotas for 2015"(April 30, 2015).

14. 90-Day Finding on a Petition to List the Queen Conch as Threatened or Endangered Under the Endangered Species Act, 77 Fed. Reg. 51,763 (August 27, 2012).

15. Notice of 12-month Finding on a Petition to List the Queen Conch as Threatened or Endangered Under the Endangered Species Act, 79 Fed. Reg. 65,628 (November 5, 2014).

16. "About Caicos Conch Farm," Caicos Conch Farm, accessed June 10, 2015. http://www.caicosconchfarm.net/about-caicos-conch-farm.html (There has been a captive queen conch breeding facility in Turks and Caicos since 1984 called the Caicos Conch Farm); "Caribbean queen conch (*Strombus gigas*)," The Food and Agriculture Organization, accessed June 10, 2015. http://www.fao.org/docrep/006/y5261e/y5261e07.htm.

17. Importation, Exportation, and Transportation of Wildlife, 50 C.F.R. 14.4 ("There is a presumption that eight or more similar unused items are for commercial use.").

18. Listing and Protecting Loggerhead Sea Turtles as "Threatened Species" and Populations of Green and Olive Ridley Sea Turtles as Threatened Species or "Endangered Species," 43 Fed. Reg. 32,800 (July 28, 1978).

19. Listing and Protecting Loggerhead Sea Turtles as "Threatened Species" and Populations of Green and Olive Redly Sea Turtles as Threatened Species or "Endangered Species," 43 Fed. Reg. 32,800 (July 28, 1978); Determination of Nine Distinct Population Segments of Loggerhead Sea Turtles as Endangered or Threatened, 76 Fed. Reg. 58,868 (September 22, 2011).

20. Conservation of Endangered Species and Other Fish or Wildlife, 35 Fed. Reg. 8,491 (June 2, 1970).

21. Importation, Exportation, and Transportation of Wildlife, 50 C.F.R. 14.4. ("There is a presumption that eight or more similar unused items are for commercial use.")

22. Convention on International Trade in Endangered Species of Wild Fauna and Flora, "CITES Species Database," accessed June 10, 2015. http://checklist.cites.org/#/en (The CITES Appendix I listing for *Caiman latirostris* excludes the population in Argentina, which is listed in Appendix II.).

23. List of endangered and threatened wildlife, 35 Fed. Reg. 8495, 8498 (June 2, 1970)

24. Reclassification of Yacare Caiman in South America from Endangered to Threatened, and the Listing of Two Other Caiman Species as Threatened by Reason of Similarity of Appearance, 65 Fed. Reg. 25867, 25881 (May 4, 2000).

25. Endangered Status for 159 Taxa of Animals, 41 Fed. Reg. 24062, 24067 (June 14, 1976); Listing One Distinct Population Segment of the Broad-Snouted Caiman as Endangered and a Second as Threatened With a Special Rule; Final Rule, 78 Fed. Reg. 38161, 38190 (June 25, 2013).

26. Convention on International Trade in Endangered Species of Wild Fauna and Flora, Notification to the Parties, *Export of skins of Caiman crocodilus* (No. 2014/020), Geneva 2014 (An agreement was reached with the Management Authority of Colombia and farms of captive-bred *Caiman crocodilus fuscus* regarding an export quota for skins. This indicates that captive caiman breeding does occur in Colombia.).

27. Importation, Exportation, and Transportation of Wildlife, 50 C.F.R. 14.4 ("There is a presumption that eight or more similar unused items are for commercial use.").

28. List of endangered and threatened wildlife, 35 Fed. Reg. 8495 (June 2, 1970); Final Rule to Remove the Morelet's Crocodile From the Federal List of Endangered and Threatened Wildlife, 77 Fed. Reg. 30820, 30854 (May 23, 2012).

29. Listing with Endangered Status for the American Crocodile Throughout Its Range and the Saltwater Crocodile Exclusive of the Papua New Guinea Population, 44 Fed. Reg. 75074, 75076 (December 18, 1979); Reclassification of the American Crocodile Distinct Population Segment in Florida from Endangered to Threatened, 71 Fed. Reg. 13027, 13041 (March 20, 2007).

30. Listing with Endangered Status for the American Crocodile Throughout Its Range and the Saltwater Crocodile Exclusive of the Papua New Guinea Population, 44 Fed. Reg. 75074, 75076 (December 18, 1979).

31. List of endangered and threatened wildlife, 35 Fed. Reg. 8495, 8498 (June 2, 1970).

32. List of endangered and threatened wildlife, 35 Fed. Reg. 8495, 8498 (June 2, 1970); Reclassification of Nile Crocodile from Endangered to Threatened, 58 Fed. Reg. 49870 (September 23, 1993).

33. Importation, Exportation, and Transportation of Wildlife, 50 C.F.R. 14.4 ("There is a presumption that eight or more similar unused items are for commercial use.").

34. Importation, Exportation, and Transportation of Wildlife, 50 C.F.R. 14.4 ("There is a presumption that eight or more similar unused items are for commercial use.").

35. Importation, Exportation, and Transportation of Wildlife, 50 C.F.R. 14.4 ("There is a presumption that eight or more similar unused items are for commercial use.").

CHAPTER 7

1. U.S. Fish and Wildlife Service Office of Law Enforcement, *Law Enforcement at a Glance*, February 2014.

2. U.S. Fish and Wildlife Service, Office of Law Enforcement *Annual Report FY 2010*, 21. (In FY 2010, FWS annual budget was $65 million.)

3. U.S. Customs and Border Protection, *Air/Sea Passenger User Fees Collection Information*, accessed September 25, 2015 http://www.cbp.gov/border-security/ports-entry/cargo-security/carriers/air-sea-passenger-user-fees/facthead (Effective April 1, 2007 the fees for passengers aboard commercial vessels or aircrafts arriving in the United States from places other than Canada, Mexico and U.S. territories, possessions and adjacent islands were set at $5.50.); Airlines for America, *Government-Imposed Taxes on Air Transportation*, accessed September 25, 2015. http://airlines.org/data/government-imposed-taxes-on-air-transportation/ (The Customs user fee of $5.50 funds inspections of arriving passengers by the U.S. Customs and Border Protection.).

4. Executive Order 13684, Combating Wildlife Trafficking, July 1, 2013; National Strategy for Combating Wildlife Trafficking, February 2014.

5. Darryl Fears, "Overwhelmed U.S. port inspectors unable to keep up with illegal wildlife trade," *Washington Post*, October 17, 2014, accessed June 5, 2015 http://www.washingtonpost.com/national/health-science/overwhelmed-us-port-inspectors-unable-to-keep-up-with-illegal-wildlife-trade/2014/10/17/2fc72086-fe42-11e3-b1f4-8e77c632c07b_story.html (Former Department of Interior deputy secretary, David Hayes, said that a major part of the problem is the lack of inspections at our ports.).

6. U.S. Fish and Wildlife Service Office of Law Enforcement, *Law Enforcement at a Glance*, February 2014.

7. U.S. Fish and Wildlife Service Office of Law Enforcement, anonymous interview by author, May 22, 2015.; The United States Department of the Interior, Budget Justifications and Performance Information Fiscal Year 2015, (2014), LE-4-5.

8. U.S. Fish and Wildlife Service, *Wildlife Detector-Dog and Inspector Training Program Q & A's*, 2013.

9. U.S. Fish and Wildlife Service, *Wildlife Detector-Dog and Inspector Training Program Q & A's*, 2013.

10. Defenders of Wildlife published a number of identification guides, including one for sea turtles, that would be useful tools in enhancing species identification. The guides are accessible online at http://www.defenders.org/sites/default/files/publications/sea-turtles-of-mexico-id-guide.pdf.

11. Executive Order 13684, Combating Wildlife Trafficking, July 1, 2013; National Strategy for Combating Wildlife Trafficking, February 2014.

12. National Strategy for Combating Wildlife Trafficking: Implementation Plan, February 2015.

13. Darryl Fears, "Overwhelmed U.S. port inspectors unable to keep up with illegal wildlife trade," *Washington Post*, October 17, 2014, accessed June 5, 2015. http://www.washingtonpost.com/national/health-science/overwhelmed-us-port-inspectors-unable-to-keep-up-with-illegal-wildlife-trade/2014/10/17/2fc72086-fe42-11e3-b1f4-8e77c632c07b_story.html (Brook Darby, a deputy assistant secretary for the narcotics and law enforcement issues at the State Department, said that in order for the United States needs to do a better job to be a role model and practice what we preach to other governments.).

14. "Rhino horn smuggling ringleader receives 70 month jail sentence," *TRAFFIC*, last modified May 29, 2014, accessed June 9, 2015 http://www.traffic.org/home/2014/5/29/rhino-horn-smuggling-ringleader-receives-70-month-jail-sente.html ("Zhifei Li, the owner of an antique business in China has received a 70 month prison term—one of the longest sentences to be imposed in the United States for a wildlife smuggling offence—for his role in trafficking 30 rhinoceros horns and numbers rhino horn and elephant ivory artifacts from the US to China.").

15. U.S. Fish and Wildlife Service Office of Law Enforcement, *Buyer Beware*, brochure, 2003, available at: www.fws.gov/internationa/pdf/brochure-caribbean-buyer-beware-2003.pdf; *Wildlife in the Jewelry Trade*, February 2013, available at: www.fws.gov/le/pdf/Wildlife-in-the-Jewelry-trade.pdf