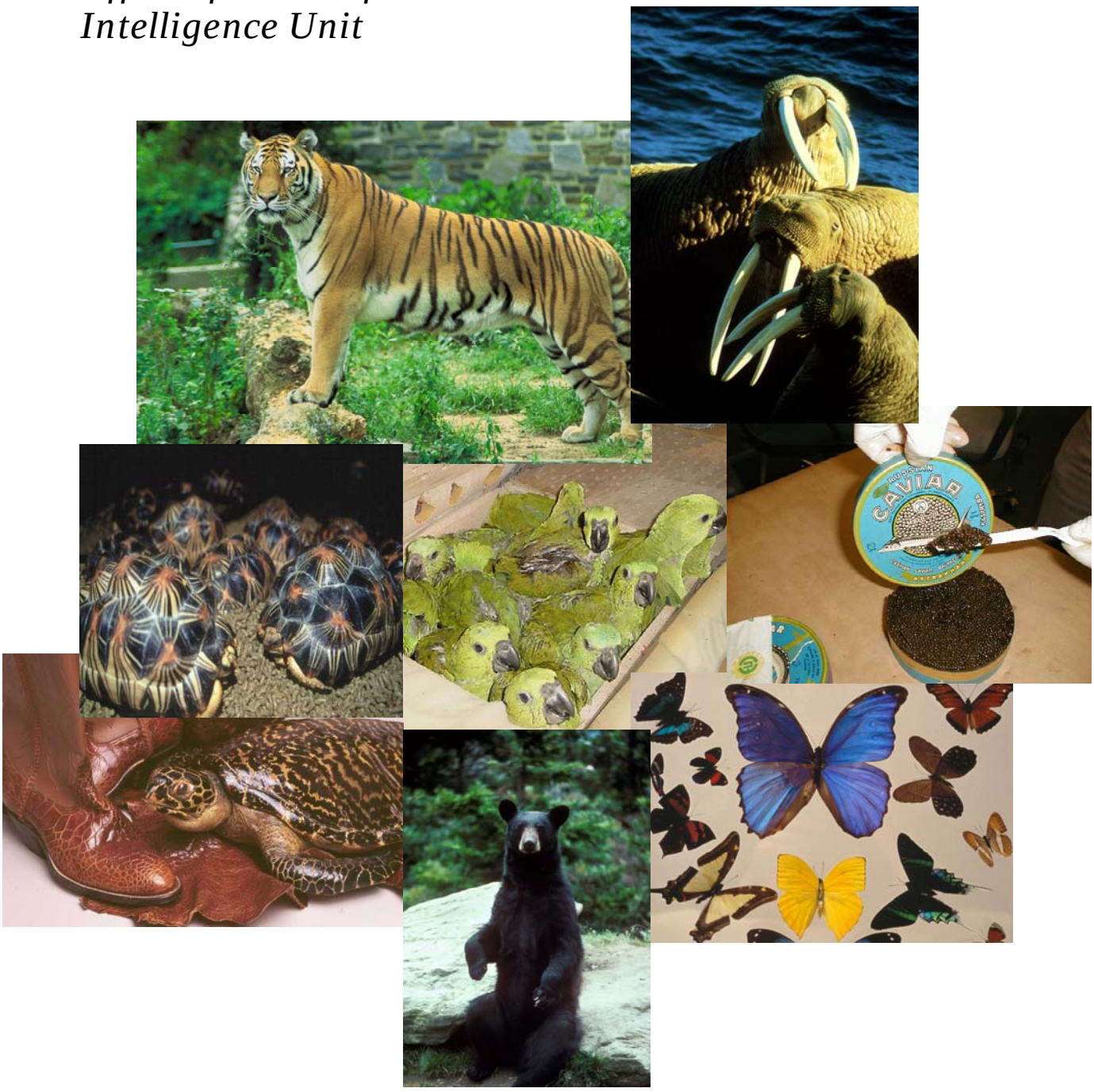
U.S. Fish & Wildlife Service

U.S. Wildlife Trade: An Overview for 1997-2003

Office of Law Enforcement
Intelligence Unit



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I. Acknowledgments

We would like to extend special thanks to Reanay Sunderland of the Office of Law Enforcement LEMIS Help Desk for her tireless efforts in helping us obtain data for this report. We also greatly appreciate the input and assistance of all of the wildlife inspectors who took time out of their busy days to review parts of this document. We are also grateful to Kathy Whittemore for providing maps for the ports reviewed in the report, and to Sheila Einsweiler, Circee Pieters, Mark Newcastle, and Nan Rollison, all of whom assisted our efforts in preparation and production of this document. Finally, we would like to thank Sal Amato, Roland Marquis, Paul Cerniglia, and Tim Van Norman for reviewing the entire report and providing feedback that greatly improved the final product.

II. Executive Summary

In this report, we reviewed and analyzed wildlife import and export data collected by the U.S. Fish and Wildlife Service (USFWS or the Service) for a seven-year period: 1997-2003. The report provides a broad overview of the U.S. role in wildlife trade.

On a national level, we examined the volumes of wildlife in trade each year by number of shipments, number of items/pieces, and weight; the most heavily traded species and commodities; the types of wildlife that are most frequently refused clearance; our most frequent trading partner countries; and how these aspects of wildlife trade have changed over time. (A shipment is "refused clearance" when it violates a U.S. wildlife law, treaty, or regulation. The Service typically seizes such shipments, although some may be re-exported.)

At the port level, we examined wildlife trade volumes by year for some 60 locations. We also looked in more detail at the three ports handling the largest volume of wildlife trade over the course of the review period. For these locations, we examined not only trade volume but also the types of trade, the modes of transport used, the most frequently traded commodities, and how these aspects of wildlife trade changed during the period reviewed.

U.S. Overview

At the national level, there were a number of key findings, including:

- Imports by number of shipments increased 41% from 1998 to 2003, while exports remained relatively flat.
- Imports, measured by number of items/pieces and by weight, constituted approximately 90% of total trade (imports and exports combined) by number and weight, and showed a general increasing trend throughout the review period.
- Exports by number of items/pieces showed a general decreasing trend since 1997, while exports by weight appeared to increase to a peak in 2000 before declining since that time.
- Canada was the United States' most significant supplier by number of shipments, while Mexico was by far the biggest supplier of wildlife shipments that were refused clearance.
- Live animal imports exceeded 235 million animals in 2003 and constituted nearly 30% of all imports reported by number, due primarily to an enormous tropical fish trade that exceeded 210 million fish.

- Live animals of U.S. origin were exported in excess of 20 million animals in 2003, constituting over 35% of all exports reported by number, with red-eared slider turtles being the single biggest component of the live export trade.
- The most imported species groups reported by number were tropical fish and mollusks, with the former averaging in excess of 200 million annually.
- The largest and most dramatically increasing import by weight involved whole dead fish of various species, much of which is used as bait.
- The top three exports reported by number were consistent throughout the review period and consisted of tropical fish (which are typically reported by group rather than by specific species), red-eared slider turtles, and mink.
- Nine of the 19 species or groups of species that made up the top 10 exports annually during the review period consisted of various freshwater mussels, exported primarily as whole shells for use in the cultured pearl industry.
- Shipments identified as sea turtle (which would include sea turtle eggs, meat, and shells as well as leather goods, creams, and other products made from sea turtles) accounted for the largest number of shipments refused clearance each year, though the number of refusals declined throughout the review period.

Port Analyses

Our limited review of trade at the port level showed that:

- Over half (54%) of all imports during the review period entered the United States at the ports of New York, Los Angeles, and Miami.
- Import volume increased dramatically during the review period at a number of ports. Wildlife imports in New York, for example, jumped from 12,645 shipments in 1998 to 26,454 in 2003. Other ports that saw significant growth in imports included Los Angeles, Anchorage, Newark, Boston, Atlanta, and the northern border ports of Blaine, Washington, and Portal and Pembina in North Dakota.
- Few ports experienced significant growth in export shipments. Several, including Los Angeles, Miami and New York, saw export numbers fall over the review period.
- Despite such declines, these three ports combined accounted for 40% of all export shipments. Los Angeles handled the largest volume of export traffic both overall and during each year of the review period.

III. Introduction

Wildlife trade is valued at tens of billions of dollars per year and involves thousands of wild species. Illegal or unsustainable wildlife trade is a primary or significant threat to thousands of species, from among the most well known such as rhinos and tigers, to the unique such as chameleons and seahorses, to the obscure such as sea cucumbers and glass eels. The vast number of species in trade is nearly equaled by the variety of forms in which they are traded, from live animals as pets, to skins and skin products for clothing, from meat, eggs and body parts used as traditional medicines and food, to bones, tusks and teeth used for decoration, to hunting trophies and even bait.

The United States is among the world's largest consumers of wildlife and wildlife products. According to the U.S. Fish and Wildlife Service budget request for 2005, U.S. wildlife trade jumped 62% in a decade, with declared shipments increasing from approximately 74,500 in 1992 to nearly 120,000 in 2003.

This growth is echoed by the growth in protected species lists under laws and treaties such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Listings under CITES rose from under 750 listings in 1992 to over 1,250 listings covering tens of thousands of species in 2002. By virtually any measure, wildlife trade has been a growth industry.

The Service's Office of Law Enforcement (OLE) polices U.S. wildlife trade to ensure compliance with the CITES treaty and an array of U.S. wildlife protection laws and regulations. U.S. wildlife importers and exporters must declare their shipments to the Service, bring them through ports authorized to handle such trade, and make them available for examination by Service wildlife inspectors.

These officers, who are stationed at major airports, ocean ports, and border crossings, play a critical role in both facilitating legal wildlife trade and intercepting illegal trafficking. Their work also gives the Service ready access to a wealth of information about wildlife trade in the United States.

This report documents the scope, scale, and dynamics of this trade over a seven-year period (1997 to 2003). It analyzes data from the OLE's Law Enforcement Management Information System (LEMIS) – a wildlife import/export database that catalogues in detail virtually every wildlife shipment declared to the Service.

We undertook this study as part of our ongoing efforts to improve the effectiveness of U.S. wildlife trade enforcement. Only by fully understanding the wildlife trade can we effectively regulate it and ensure that it does not threaten the survival of species in the wild. By making this information available to the public, we hope that our work will also contribute to a better understanding of the U.S. role in wildlife trade and help other organizations in their efforts to protect and conserve wildlife resources.

IV. Methods

Consultation with Service law enforcement managers, wildlife inspectors, and other OLE staff helped us identify the questions that would be addressed in this report. Based on this input, we focused on the following:

At the national level:

1. Total number of import and export shipments traded annually;
2. Total volume of annual imports and exports by number and weight;
3. Top 10 wildlife trading partners for imports and exports;
4. Top 10 trading partners for imports and exports refused clearance;
5. Scope of and most frequently traded species in the live animal trade;
6. Top 10 species imported and exported annually;
7. Top 10 species refused clearance upon import annually; and
8. Significant trends in each area during the review period.

On a port by port basis:

1. Total number of shipments imported annually; and
2. Total number of shipments exported annually.

For ports examined in detail, we also looked at:

1. Total number of shipments imported annually;
2. Number of shipments by mode of transport;
3. Number of shipments by purpose;
4. Most traded commodities and the species involved; and
5. Significant trends in each area during the review period.

In order to conduct these assessments, we obtained LEMIS data for 1997 through 2003, both in its most basic form as line by line data as it was entered into LEMIS and as summary data sets based on a number of specific queries. LEMIS records for wildlife imports and exports identify by code the purpose of the shipment (commercial, personal, scientific, hunting trophy, etc.); the type of wildlife (often, but not always identified by species); the amount of wildlife; the form in which it is being traded (live animal, meat, trophy, bone, leather product, etc.); where it is coming from or going to; and the method of transport. (Appendix A identifies LEMIS codes for the trade parameters examined in this study. Appendix B provides a list of common names for wildlife that may appear in this report along with the associated scientific name and LEMIS code.)

It is important to note at the outset that there were a number of factors that limited the extent to which we could fully explore the issues covered in this report, many of which were particular to the data compiled within LEMIS. Some of the most significant are as follows:

- LEMIS import/export data are maintained for seven years before they are purged from the database. Thus, in some instances, our data for 1997 were incomplete, and only data for 1998-2003 are presented. Similarly, because there can be delays in inputting data into LEMIS, our 2003 data set may not have been complete for at least some analyses. While it is impossible to ascertain if or when 2003 data were complete, the data were used in our analyses. Where we are aware of data entry backlogs for 2003 for individual ports, we note this gap in the text.
- Wildlife data are entered into LEMIS according to several criteria with multiple codes. For instance, there are 79 different wildlife description codes to define the type of commodity or product and 10 different unit of measure codes to document the amount or quantity being imported or exported. Perhaps most problematic is the fact that there are often multiple species codes that can be used to enter a single species, at varying levels of scientific specificity. The multiple variations in which a single entry can be recorded in LEMIS mean that it becomes extremely difficult, if not impossible, to precisely measure "how much" wildlife was being traded in a given year, what the "top 10" species imported into the United States were, etc. For example, 1,500 alligator watchstraps may have involved 12 alligators, while 1,500 alligator skins came from 1,500 alligators, and 1,500 kg of alligator skin pieces may have involved 3,000 alligators. Likewise, if a species is assigned two species codes, large changes in trade levels in one could mean a change in trade or a shift toward greater usage of a second species code.
- LEMIS codes change over time in recognition of new species, more specific codes, etc. Among the most significant changes for these analyses was the creation of new, more specific "purpose" codes that have led to noncommercial (N) shipments being recorded as hunting (H), personal (P), or another more specific code. Thus, our purpose code analyses will refer to noncommercial shipments in the narrow sense (N) as well as the broad sense (all codes other than T (commercial)). Another change is the advent of more specific species codes for a number of marine fish species that were previously captured under very broad codes, such as for "rough fish" (ROFS) or "non-CITES listed fish species" (FNCT).
- Policies regarding the types of shipments that are entered into LEMIS have changed over time. Two significant examples are the entry (or non-entry) of non-CITES listed hunting trophy shipments from Canada or Mexico, and the types of shipments that fall within or outside of the policy regarding fisheries products for human or animal consumption. For

example, we found tremendous increases or declines in hunting trophy or fish bait shipments for several ports. It was often difficult to determine if we were seeing an actual change in trade, or simply a change in the types of shipments entered into LEMIS.

- Similarly, there were several years, beginning before our review period and ending in 2001, when certain wildlife shipments, such as ranch-raised furs involving non-protected species, were processed electronically via the U.S. Customs Service Automated Broker Interface and not captured via LEMIS. Thus, the absence of these data for this period may have skewed our results to show increases in subsequent years in certain commodities that were, in reality, simply not being captured in LEMIS as they are currently.

All references to individual years refer to calendar, rather than fiscal, year. Only imports, exports and re-exports were examined. Foreign in-transit shipments were excluded from the analyses. Additionally, because exports and re-exports are not differentiated in LEMIS, all references to exports also include re-exports unless otherwise specified.

Readers should understand that, because this report relies solely on LEMIS data, it is not, in and of itself, a complete measure of the U.S. wildlife trade. As noted above, all wildlife shipments processed by the Service during the study period were not uniformly entered into LEMIS. The database, for example, does not account for many of the hunting trophies that move across the Canadian and Mexican border or for a certain portion of trade in ranch-raised furs. It is also important to remember that LEMIS represents a database of *declared* wildlife shipments – for the most part, shipments that importers and exporters have presented to the Service for clearance. It thus does not capture wildlife shipments that are not declared to the Service and that escape detection upon entry or exit.

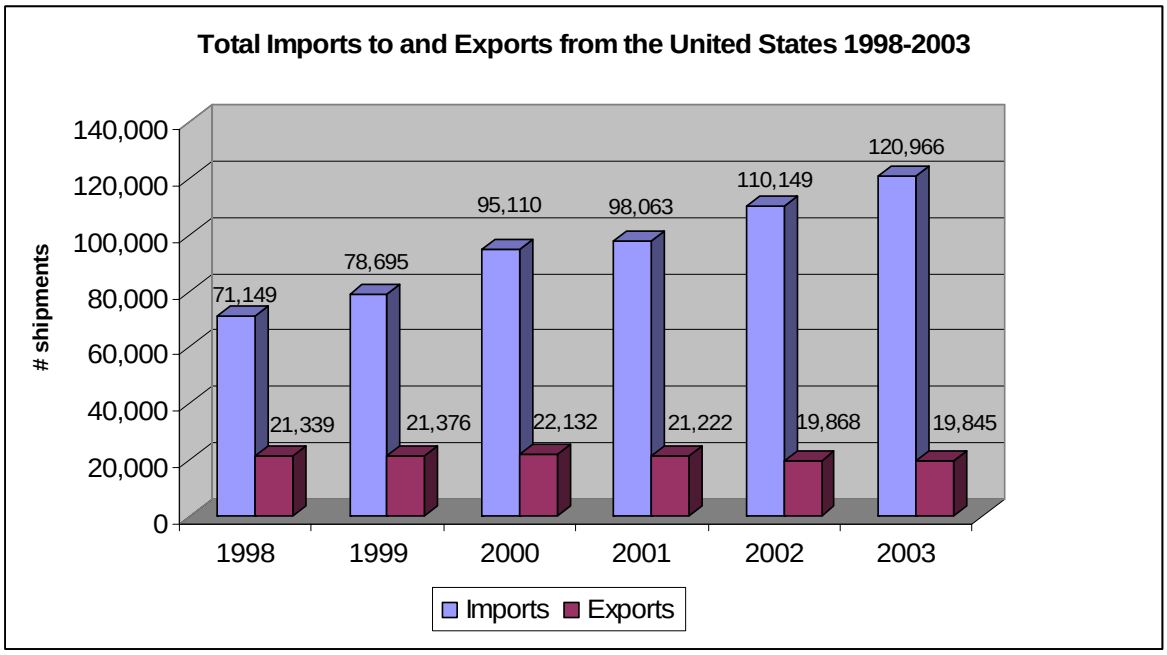
V. Overview of Wildlife Import and Export at the National Level

In an effort to provide a snapshot of wildlife import and export at the national level, we assessed LEMIS data from 1997 to 2003 through a variety of lenses, including the total annual number of imports and exports; total annual quantities imported and exported by number (number of items, pieces, etc.) and weight (kg, pounds, etc.); the 10 species or groups of species most often imported or exported, by number and weight; the 10 species or groups of species most often refused clearance; the modes of transport for those refusals; the number of live animals imported by "Class" code; and the top 10 wildlife trading partner countries by number of shipments imported to and exported from the United States. Because 1997 data were not complete (except for refused shipment data), we refer only to 1998-2003 data where trends, averages and other analyses required complete annual trade data.

A. Number of Shipments Imported to and Exported from the United States

Imports

The number of wildlife shipments imported to the United States and entered into LEMIS increased steadily and substantially throughout the review period, from a low of 71,149 imports in 1998 to a high of 120,966 import shipments in 2003. There are a number of potential factors that led to this 41% increase in imports, including: changes in the types of shipments that are entered into LEMIS, such as non-protected species hunting trophies and certain fisheries products; the addition of new species, such as sturgeon, listed under CITES and other wildlife laws; and the opening up of trade in previously prohibited species, such as Nile crocodile, saltwater crocodile and vicuna. Many of these issues are explored in greater depth in other sections of this report.



Exports

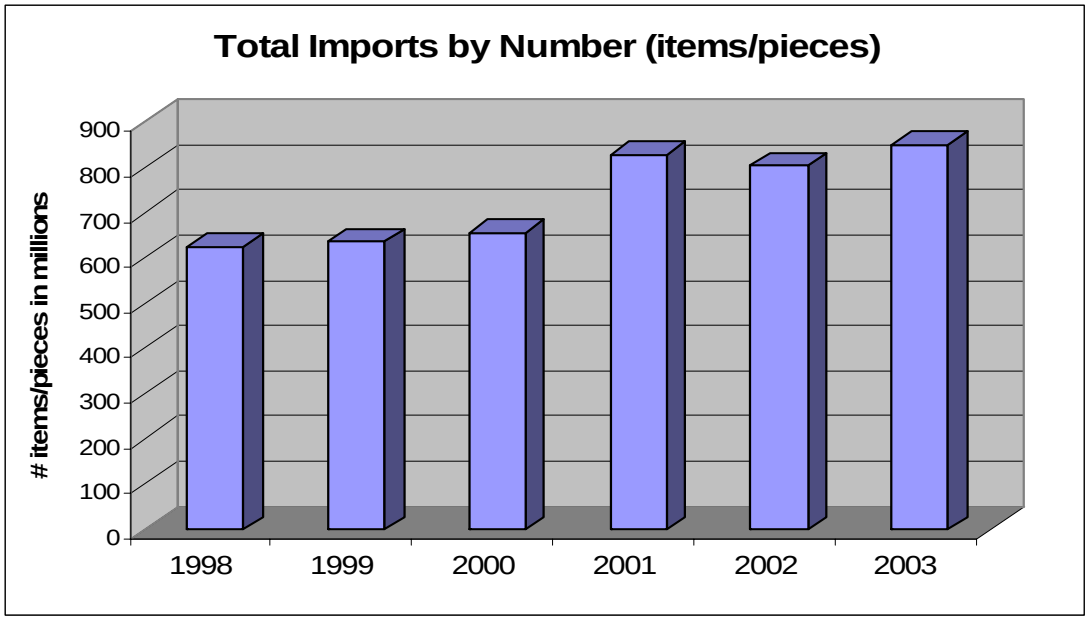
In contrast to the substantial increase in imports of wildlife to the United States, the annual number of exports entered into LEMIS throughout the review period remained relatively stable or declined slightly. There were 21,339 wildlife exports recorded in LEMIS in 1997, rising to 22,132 shipments in 2000 before declining to 19,845 export shipments in 2003.

Clearly, wildlife imports greatly exceeded exports, and the disparity increased each year throughout the review period, with imports constituting 77% of all shipments in 1997 and 86% of all shipments in 2003.

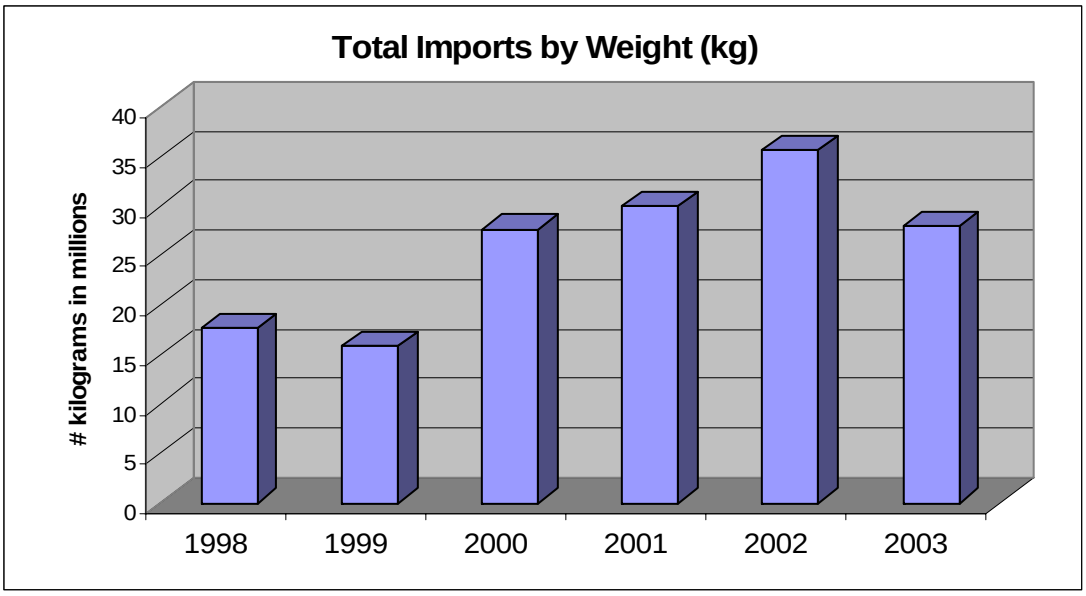
B. Total Annual Imports by Number and Weight

The two primary units of measure utilized to document wildlife imports and exports in LEMIS are number (referring to the number of items, pieces, specimens, etc.) and weight (typically kilograms). Certain types of wildlife are generally declared using only one of these units of measure. For example, live animals are almost always declared by number, while meat is generally declared by weight. This is by no means a firm rule, and there are many exceptions, such as mollusks, which are frequently recorded either by number or weight. However, by assessing both units of measure, we are capturing virtually all wildlife imports and exports recorded in LEMIS.

Total imports reported by number constitute approximately 93% of total trade (imports and exports combined) by number. The annual quantity of imports reported by number varied during the review period from a low of 625 million items/pieces in 1998 to a peak of approximately 850 million items/pieces in 2003, with a generally increasing trend and with an annual average of approximately 733 million items/pieces during the six-year period. Overall, trade reported by number increased 36% from 1998 to 2003.



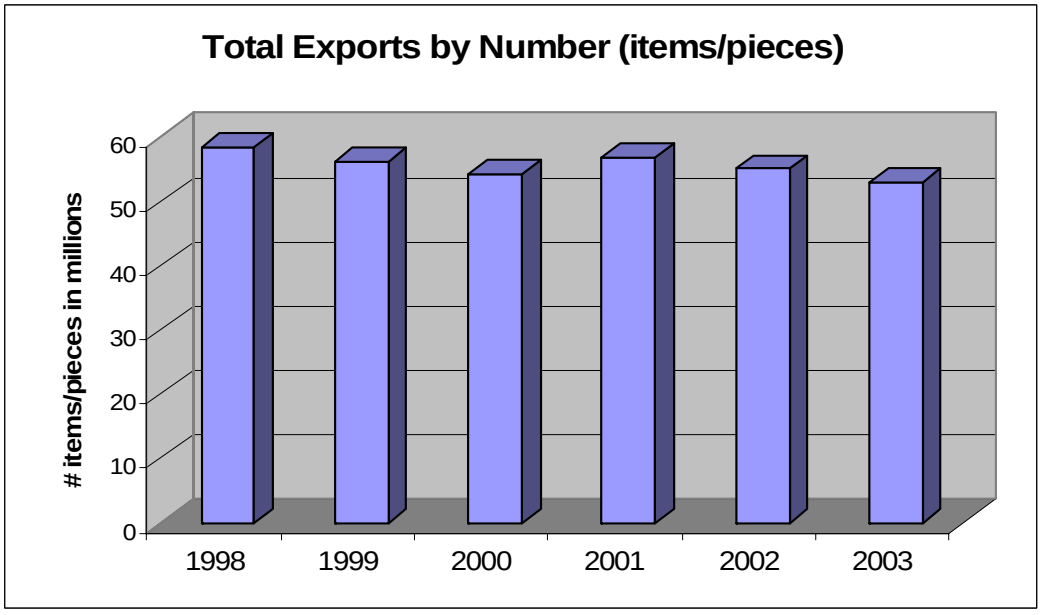
Total imports reported by weight made up approximately 89% of total wildlife trade (imports and exports combined) reported by weight. The total number of annual imports reported by weight during the review period varied from a low of 15.9 million kg in 1999 to 35.7 million kg in 2002. Imports reported by weight also showed a generally increasing trend, averaging 25.8 million kg over the six-year period and doubling from 17.7 million kg in 1998 to 35.7 million kg in 2002, before declining in 2003 to 27.9 million kg.



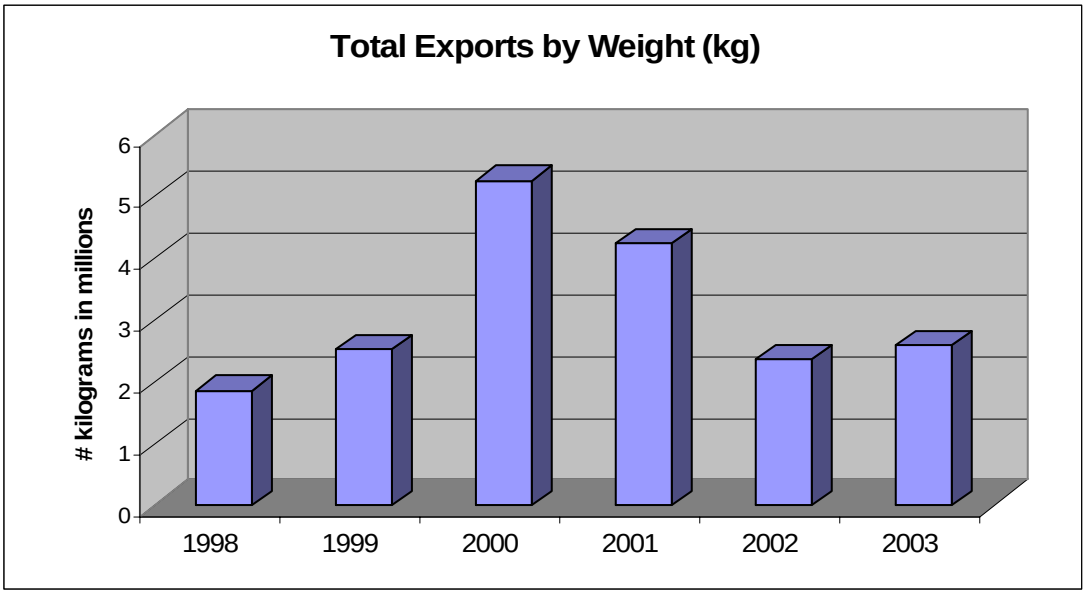
C. Total Annual Exports by Number and Weight

It is clear that, on a national scale, exports constitute a small fraction of overall recorded wildlife trade. Annual exports reported by number are roughly only 7% of total imports and exports for 1998-2003, with annual exports by weight constituting approximately 11% of total trade.

The total number of annual exports reported by number showed no clear trend throughout the review period, with a low of 52.9 million items/pieces in 2003 and a high of 58.4 million items/pieces in 1998. The annual average over the six-year period was 55.6 million items/pieces.



The total number of annual exports reported by weight generally increased from 1998 to 2000, before declining from 2000 to 2003. The lowest annual total was 1.9 million kg in 1998, with a high total of 5.3 million kg in 2000. The annual average over the six-year period was 3.1 million kg.



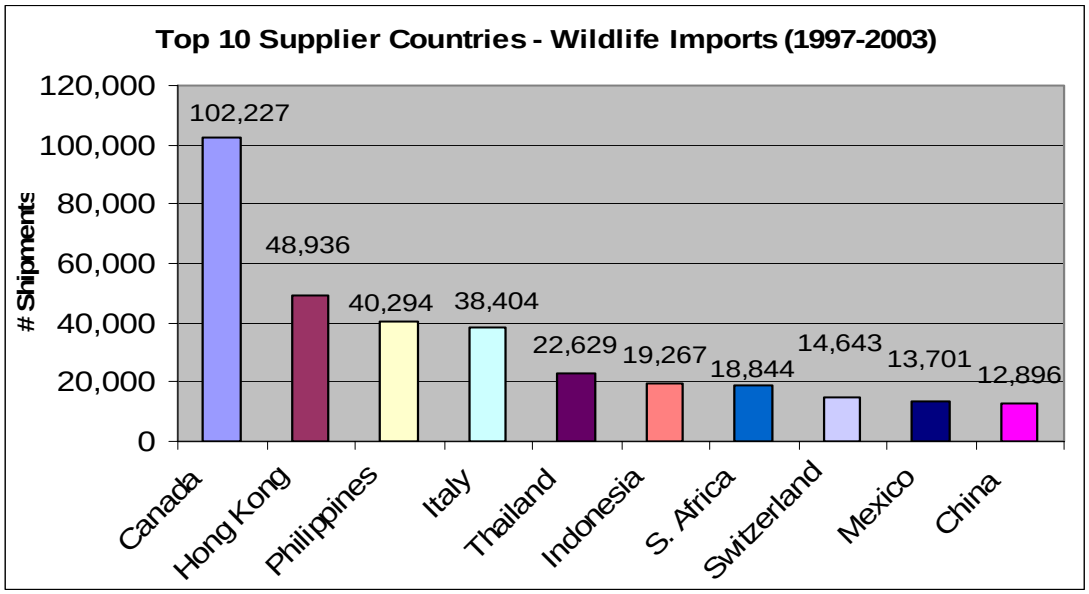
D. Top 10 Wildlife Trading Partners

In an effort to determine our most significant wildlife trading partner countries, we assessed the top 10 suppliers of wildlife to the United States and the top 10 recipients of wildlife from the United States, by number of shipments, for 1997-2003. We also evaluated the top 10 supplier countries for which shipments were refused clearance into the United States and the top 10 countries that were intended recipients of shipments that were refused clearance to leave the United States. [Note: "Refused clearance" refers to all shipments that were initially refused, even if later released. Our preference was to be inclusive, rather than exclusive, given the many reasons why a shipment initially in violation or potential violation may later be released. Regardless, the vast majority of shipments that are refused clearance are ultimately seized, abandoned or re-exported, rather than cleared.]

Top 10 Supplier Countries

Over the seven-year period reviewed, Canada was the top supplier of wildlife, by number of shipments, to the United States at 102,227 shipments. The second largest supplier of shipments

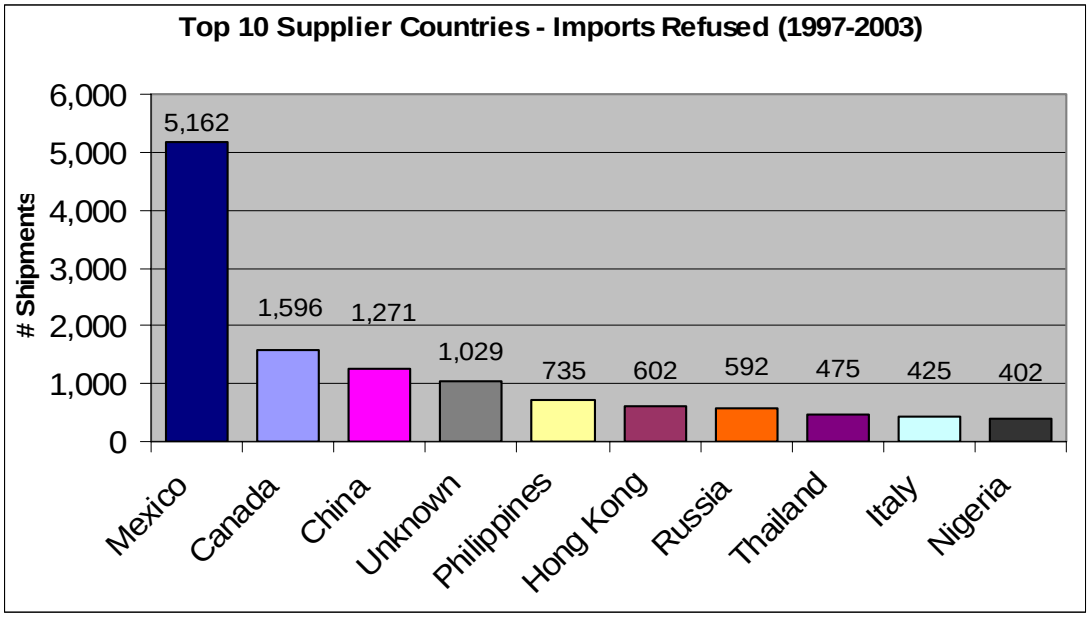
was Hong Kong at 48,936 shipments. The remainder of the top 10 included the Philippines (40,294), Italy (38,404), Thailand (22,629), Indonesia (19,267), South Africa (18,844), Switzerland (14,643), Mexico (13,701), and China (12,896). Canada accounts for such a large number due not only to its proximity to the United States, but also to the large number of hunting trophies, particularly black bears, imported from Canada. For example, in 2003 approximately 6,600 black bear rug/body/trophy shipments were imported from Canada—nearly 45% of the imports from Canada overall for that year.



Top 10 Supplier Countries for Refused Shipments

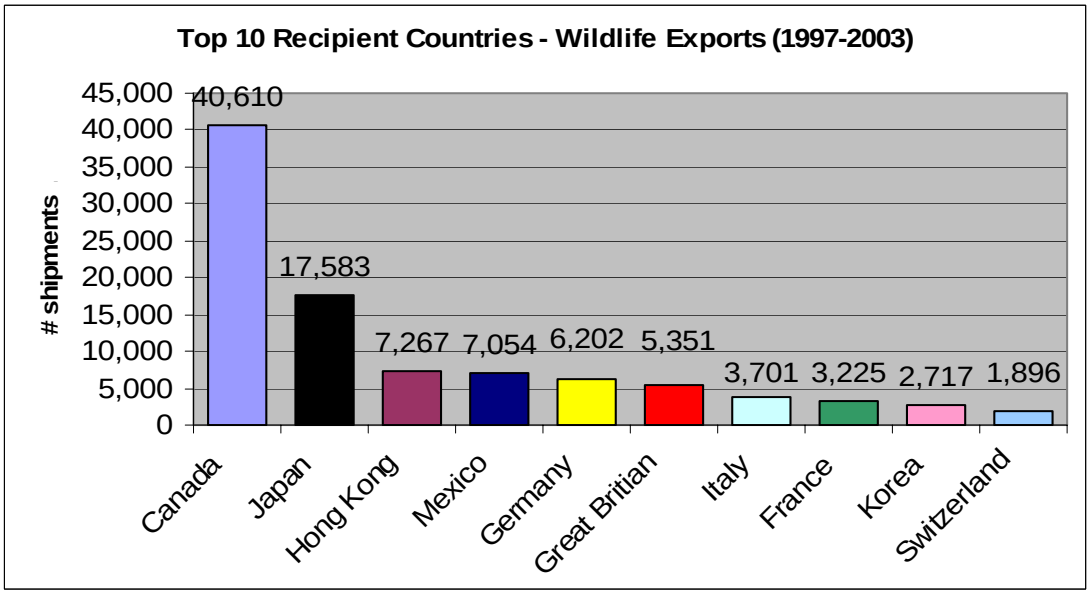
Seven of the top 10 supplier countries were also among the top 10 suppliers of shipments refused. Mexico was by far the largest supplier of shipments refused with 5,162 refusals over the seven-year period, representing 37.7% of the total number of imports from Mexico. The very high percentage of imports refused from Mexico can be attributed to Mexico's strict prohibitions on most wildlife exports, as well as the high cross-border movement of tourists and Mexican nationals. Because all refusals get entered into LEMIS, countries with broader prohibitions will have higher percentages of refusals to overall shipments than those countries that allow more types of wildlife trade. Second was Canada, with 1,596 refusals (1.6% of total imports from Canada). China (1,271), Unknown (1,029), the Philippines (735), Hong Kong (602), Russia (592), Thailand (475), Italy (425) and Nigeria (402) rounded out the top 10. [Note: Shipments with an "unknown" country of origin likely include shipments found by USFWS, or detained by other agencies and transferred to USFWS, without packaging, labels or supporting documentation

showing the country of export.] Russia and Nigeria were the only nations in the top 10 supplier countries for shipments refused that were not also among the top 10 overall suppliers.



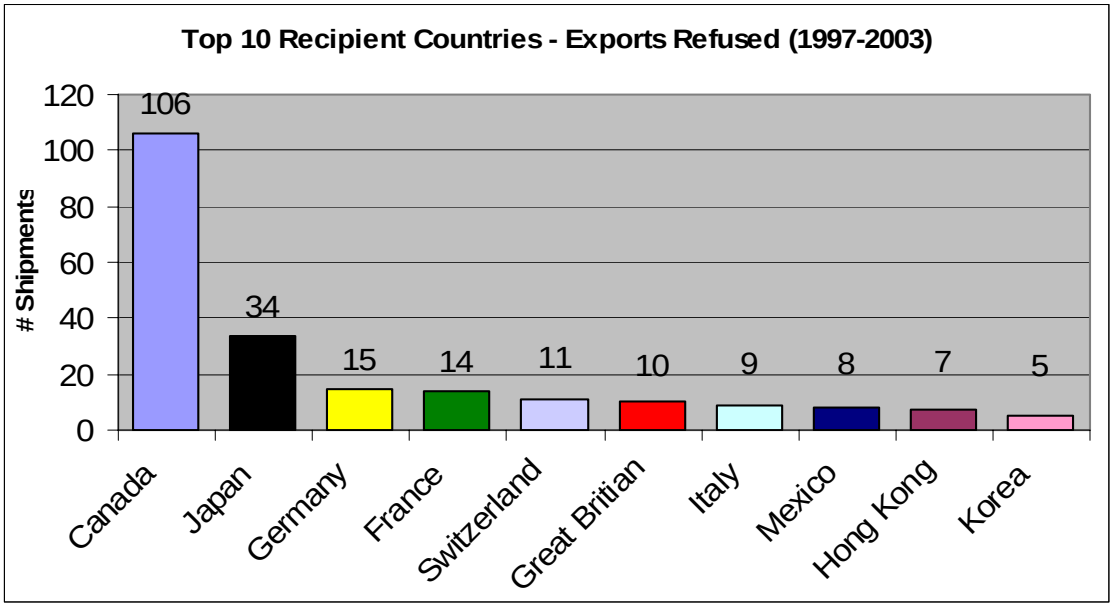
Top 10 Recipient Countries

Canada was the largest recipient of shipments from the United States, with 40,610 exports for 1997-2003. Japan was a distant second with 17,583, followed by Hong Kong (7,267), Mexico (7,054), Germany (6,202), Great Britain (5,351), Italy (3,701), France (3,225), Korea (2,717) and Switzerland (1,896).



Top 10 Recipient Countries for Refused Shipments

There was complete overlap between the top 10 overall recipient countries and the top 10 nations for which exports were refused. Canada was the intended destination for the most exports refused at 106 shipments (.26% of overall shipments to Canada), with Japan second at 34 exports (.19% of overall exports to Japan). All other destinations accounted for fewer than 20 shipments each during the seven-year period.



E. Live Animal Trade

Imports

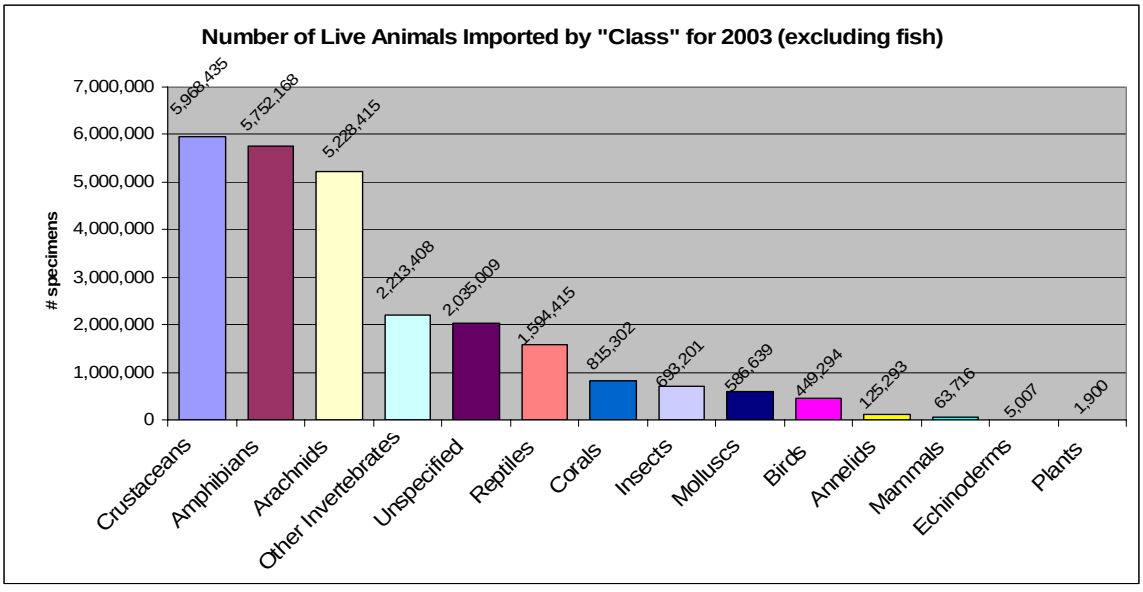
Live wildlife makes up the single greatest component of the overall U.S. wildlife trade reported by number, when compared to other wildlife description codes (e.g., skins, shells, meat). For example, live imports recorded by number in 2003 totaled 236,479,228 specimens, or 27.8% of all wildlife imports recorded by number (live wildlife by weight was not assessed).

An examination of live wildlife imports broken down by "Class" shows that live tropical fish account for the single largest category of live wildlife imports. [Note: "Class" in LEMIS is not a strict taxonomic definition of Class, and includes a variety of higher and lower taxonomic groups. Thus, the various Class codes should not necessarily be considered equivalent.] In 2003, 210.9 million tropical fish were imported. The second highest group by Class was crustaceans, with 5.97 million live animals imported, followed by amphibians with 5.75 million live amphibians imported. It should be noted that a significant portion of the more than 2 million live animals

reported as unspecified are made up of entries that were manually entered into LEMIS without a Class being assigned. This practice, referred to as scratchpad entry, is often used for shipments that contain wildlife that have no species code or only very general species codes, such as for tropical fish. The following table shows all Class categories, with total live imports for 2003:

Number of Live Animals Imported by Class for 2003		
Class Code	**"Class"**	**Quantity**
F	Fish	210,947,027
C	Crustaceans	5,968,435
A	Amphibians	5,752,168
J	Arachnids	5,228,415
Z	Other Invertebrates	2,213,408
NULL	Unspecified	2,035,009
R	Reptiles	1,594,415
D	Corals	815,302
I	Insects	693,201
S	Mollusks	586,639
B	Birds	449,294
N	Annelids	125,293
M	Mammals	63,716
E	Echinoderms	5,007
P	Plants*	1,900
Total		236,479,228

* Since most plant trade is regulated by the U.S. Department of Agriculture, LEMIS records for plants were minimal and generally involved CITES-listed plants shipped with wildlife requiring Service clearance.



Exports of U.S. Origin Wildlife

Live exports reported by number are also a significant percentage of overall exports, with the total for the top 10 species codes for live exports of U.S. origin wildlife alone (20.3 million) constituting 36.9% of the total export number for all trade categories (55.1 million). By far the two biggest species groups exported live are red-eared slider turtles and tropical fish. For 1998-2002, 43.6 million red-eared sliders were exported from the United States, with an average of 8.71 million per year. Given that red-eared slider shipments are often entered under a variety of other species codes, actual figures are likely much greater. Tropical fish exports totaled 9.5 million fish exported for the five-year period, or an annual average of 1.9 million fish exported per year. Other species or species groups that exceeded 1 million animals in any given year during the review period included redbelly and cooter turtles (*Pseudemys spp.*) (though this likely included a large number of red-eared slider turtles which are frequently declared as *Pseudemys scripta*), shrimp, crustaceans, eels, non-CITES listed fish (species code FSCT), and Atlantic salmon.

F. Top Species in Trade

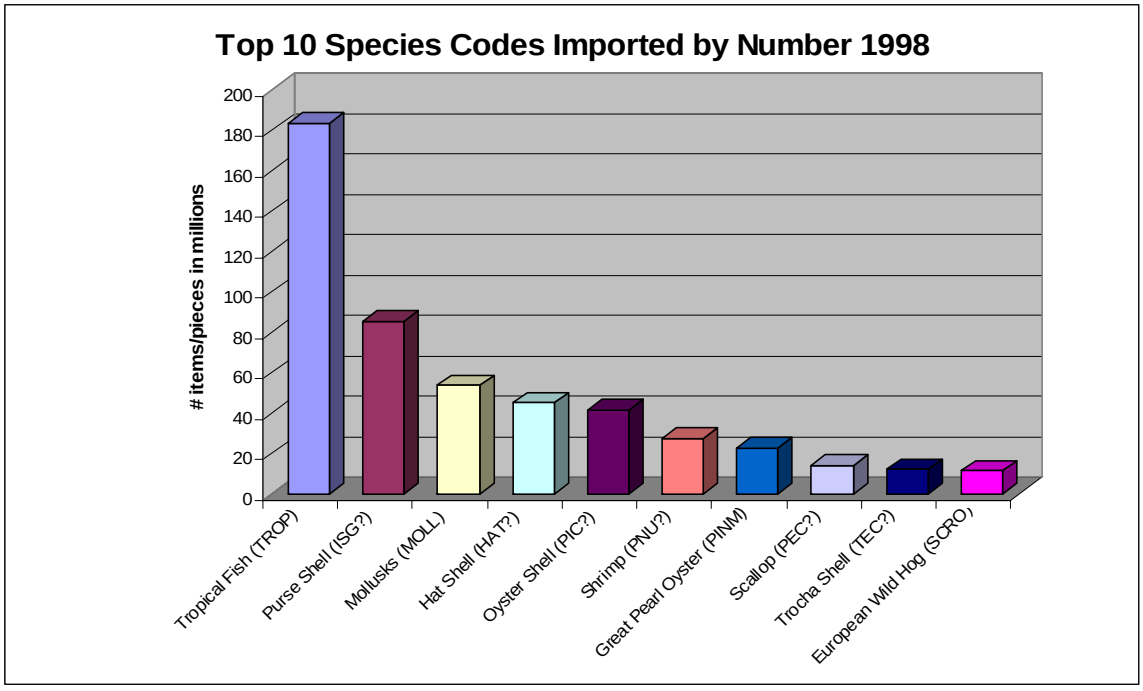
To assess the species groups most frequently traded to and from the United States, we reviewed the top 10 species codes for imports and exports, by number and by weight, annually for 1998-2003. It should be noted, however, that species codes cover a wide variety of taxa, from subspecies to whole orders, and thus are not necessarily comparable. Our results showed that many of the most common species codes used were at the species or genus level, but others were at a higher level such as TROP for all tropical fish. So, the term “species” in this section refers to a particular LEMIS species code, and not necessarily an individual taxonomic species.

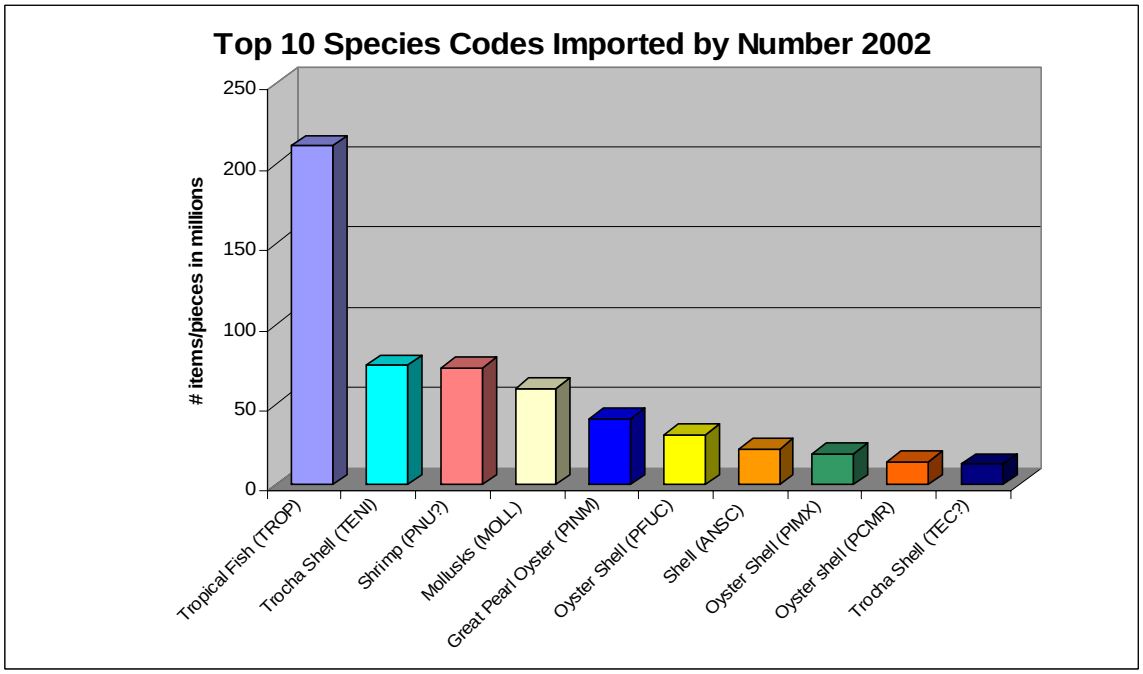
Top 10 Species Imported

By Number: All but one of the top 10 species codes each year for 1998-2003 for imports reported by number involved trade in aquatic species. The sole exception was the European wild hog, which was the tenth and ninth most imported species in 1998 and 1999, respectively, primarily due to trade in brushes made of its hair. All other codes in the top 10 for any year in the period reviewed involved fish, crustaceans or mollusks. (Note: By regulation, European wild hog is exempted as a domesticated species from Service import/export requirements; most shipments of this species should not have been entered in LEMIS as “wildlife” imports or exports.)

The top species code for each year of the review period was for tropical fish, with an average of 200.5 million fish imported annually. The vast majority of the remaining species codes in the top 10 (as few as seven and as many as nine codes) during the review period referred to various

mollusk species. When combined, these codes averaged 282,559,770 items per year. Though it is difficult to graphically illustrate the top 10 species codes over a several year period, particularly given the advent of additional species codes that break broader codes down to the genus or species level (e.g., for mollusks or fish species used as bait), the two graphs below show the top 10 species codes reported as imports by number for 1998 and 2002. These graphs show some of the similarities and differences in the highest volume imports from year to year.





By Weight: Like the top 10 species codes for imports reported by number, imports reported by weight were also dominated by codes covering aquatic species. Queen conch was in the top 10 for each year reviewed and averaged 1.98 million kg per year. Stony corals (*Scleractinia)* were in the top 10 each year as well, averaging 1.36 million kg per year, and showing a clear increasing trend from 906,418 kg in 1998 to 1.79 million kg in 2003. Mollusks were present in the top 10 every year, averaging 1.34 million kg annually.

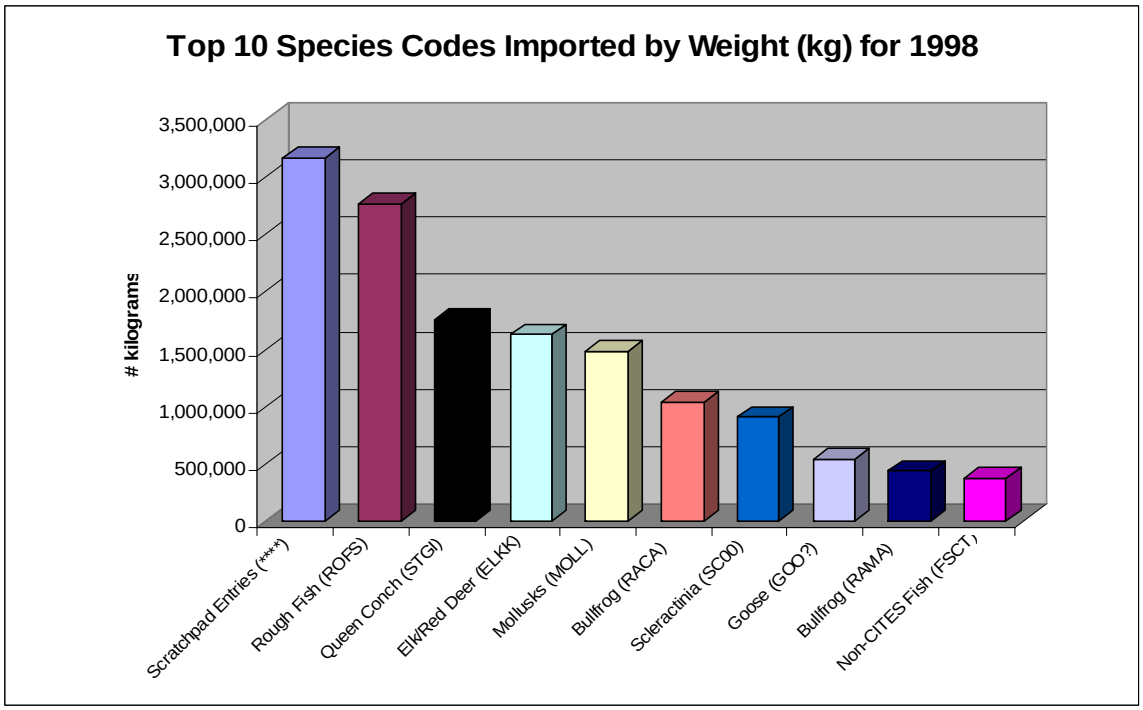
But the largest and most dramatically increasing trade involved a variety of species codes related to non-tropical fish imports, including rough fish, non-CITES listed fish, Atlantic herring, rockfish, and squid, with the first two appearing in most years, while the latter three appeared in more recent years. Combined, these imports represented a volume of over 8.99 million kg per year on an increasing trend that peaked in 2002 at over 16.38 million kg. Much of this trade is reported as either live, dead specimens, or unspecified, and the vast majority appears to be destined for use as fish bait.

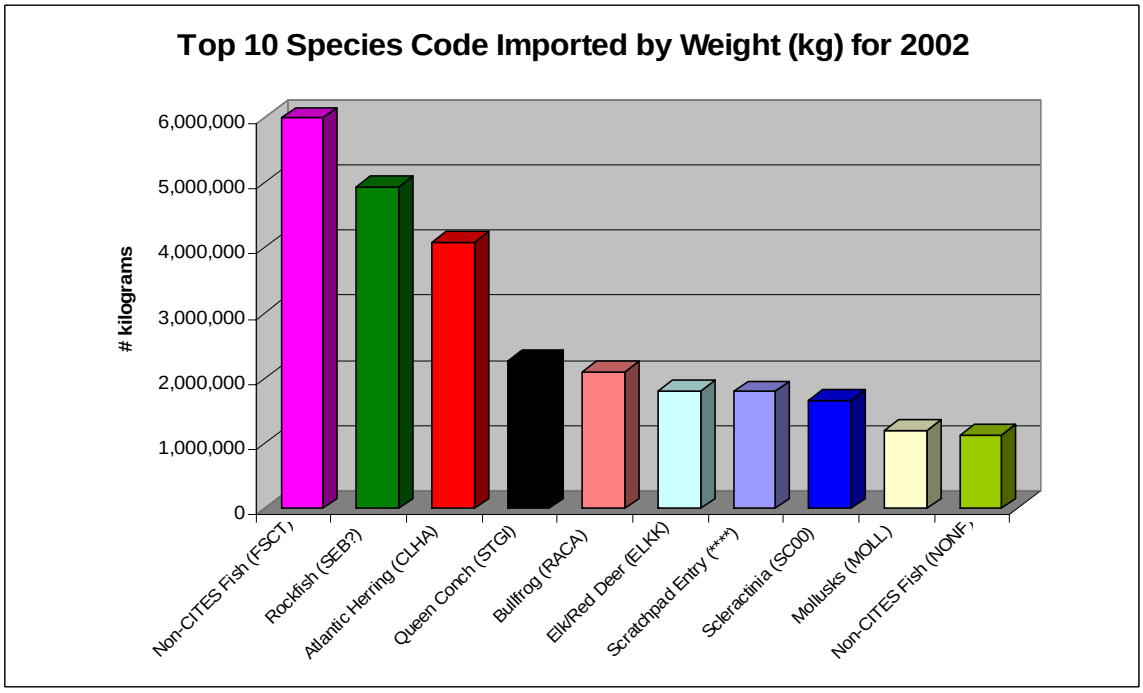
Species code **** appeared in the top 10 in each year except 2003. This code is used when the particular species involved in trade is not assigned a species code in LEMIS and the wildlife inspector chooses to have that information entered manually (scratchpad entry). In most cases for wildlife imports reported by weight, this code was used for shipments of live and dead fish, crustaceans and mollusks imported primarily for food or bait.

One or more codes representing several frog species, including bullfrogs and Indian bullfrogs, or simply the genus *Rana*, were found in the top 10 in every year and averaged 1.30 million kg annually. This trade is primarily in live animals and frozen frog legs.

The only non-aquatic species included in the top 10 species codes by weight in each year was elk/red deer, which averaged 1.18 million kg per year, and primarily involved meat.

As with imports by number, it is difficult to present the top 10 species codes imported by weight graphically over an extended period of time due to variations in species codes used from year to year. However, the two charts that follow give one an idea of the similarities and differences in the most recorded species codes by weight from year to year.





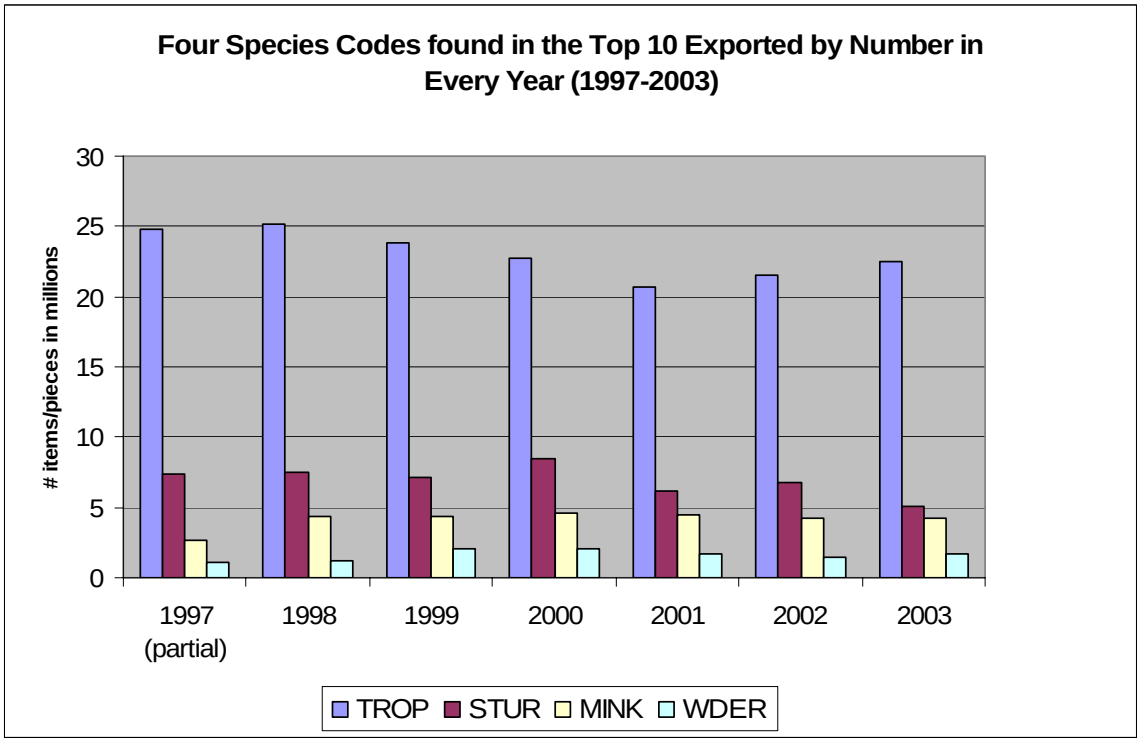
Top 10 Species Exported

By Number: The top three species codes were consistent in each year throughout the review period, with tropical fish (TROP) being the single largest export by number each year, averaging 22.75 million fish annually, primarily for the aquarium trade. The second largest export by species

code for each year was for red-eared slider turtles (STUR) with an annual average of 6.85 million. The third largest amount recorded by number each year was for mink (MINK), averaging 4.37 million annually, primarily for furs and fur products. Though some of the mink skins and products are of U.S. origin, much of this trade involves previous imports of mink skins and products from other countries, including Canada and several European countries.

There are several other species codes that refer either specifically to red-eared sliders (TSCE=*Trachemys scripta elegans*) or generally to slider turtles (TSCR=*Trachemys scripta*). Each of these codes was found in the top 10 on multiple occasions, though not every year. Likewise, the code for *Pseudemys spp.*, which refers to redbelly and cooter turtles, but also likely contains a significant number of red-eared sliders, which are often declared as *Pseudemys scripta*, was found in every year reviewed and ranged from 2.3 to 4.2 million turtles, averaging 3.20 million annually, for 1998-2003. This trade is generally in live hatchling turtles for pets and food.

The only other species code found in the top 10 each year was for white-tailed deer (WDER), averaging 1.67 million items/pieces per year, and primarily involving skins and skin products such as shoes, as well as hair for fishing flies. The four species codes found in each year reviewed are presented graphically below.

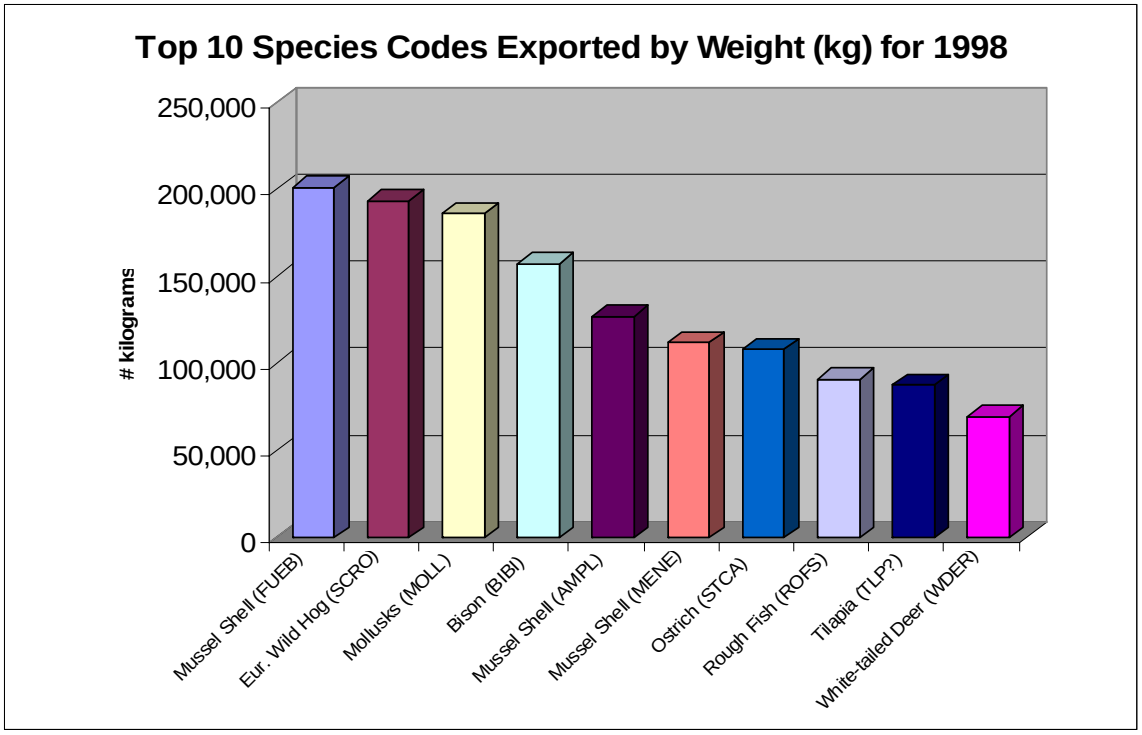


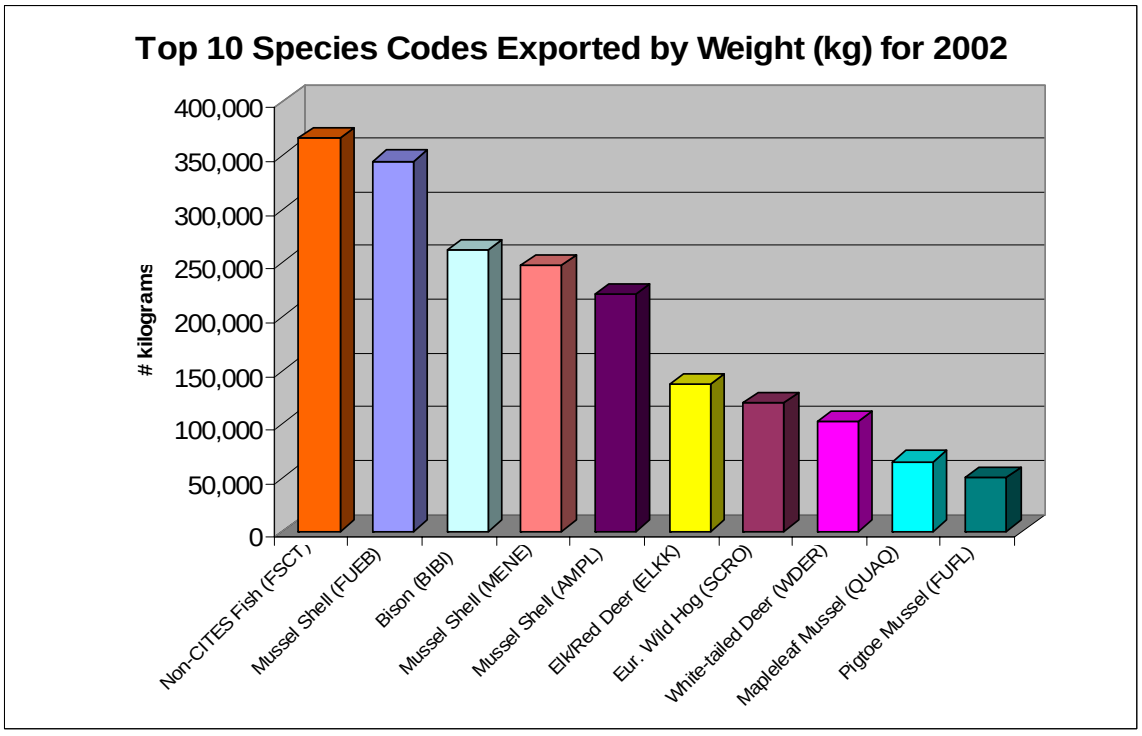
***By Weight*:** There was little consistency in the top 10 species codes for exports reported by weight over the review period. Of the 19 species codes appearing in the top 10 at least once from 1998 to 2003, only two were found in each year—a freshwater mussel species called *Megalonaias nervosa*, averaging 174,895 kg annually, and American bison, averaging 238,019 kg per year. Despite the inconsistent presence of individual species codes, the overwhelming leader in the export trade was freshwater mussels, exported primarily as whole shells for use in the cultured pearl industry. Nine of the 19 codes used represented mussels generally (MOLL) or freshwater mussel genera or species. The general mollusk code was found in the top 10 in all but one year and averaged 654,529 kg annually in the years it was in the top 10. It should be noted, however, that the data for MOLL fluctuated significantly from year to year, ranging from approximately 184,000 kg in 2003 to 1.27 million kg in 2000, while not appearing in the top 10 exports at all during 2002. Two other freshwater mussel species featured prominently in the top 10 exports were *Amblema plicata* (found in four of six years and averaging 212,978 kg in those years) and *Fusconaia ebenus* (found in five of six years and averaging over 406,589 kg in those years).

Other aquatic species were found regularly in the top 10 exports as well. Either rough fish (ROFS) or non-CITES fish (FSCT) appeared in five of the six years of the review, averaging 157,787 and 347,138 kg respectively in the years in which they were in the top 10. Tilapia and rockfish were also found in several years.

Several mammal species were also found in the top 10 exports in multiple years, including European wild hog (five years; 144,820 kg annual average), white-tailed deer (five years; 241,684 kg annual average) and elk/red deer (three years; 122,163 kg annual average). Elk/red deer trade was primarily in antler/horn, while white-tailed deer exports primarily consisted of skins. Exports of bison and European wild hog, as well as ostrich (one year; 108,734 kg) primarily involved meat. (As noted previously, however, most European wild hog shipments are not technically considered wildlife under Service regulations and should not have been entered in LEMIS as “wildlife trade.”)

As with imports, it is difficult to present the top 10 species codes exported by weight graphically over an extended period of time due to variations in species codes used from year to year. However, the two charts that follow illustrate the similarities and differences in the most recorded species codes by weight from year to year.


Top 10 Species Codes Exported by Weight (kg) for 1998
kilograms
250,000
200,000
150,000
100,000
50,000
0
Mussel Shell (FUEB)
Eur. Wild Hog (SCRO)
Mollusks (MOLL)
Bison (BIBI)
Mussel Shell (AMPL)
Mussel Shell (MENE)
Ostrich (STCA)
Rough Fish (ROFS)
Tilapia (TLP?)
White-tailed Deer (WDER)


Top 10 Species Codes Exported by Weight (kg) for 2002
kilograms
400,000
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
Non-CITES Fish (FSCT)
Mussel Shell (FUEB)
Bison (BIBI)
Mussel Shell (MENE)
Mussel Shell (AMPL)
Elk/Red Deer (ELKK)
Eur. Wild Hog (SCRO)
White-tailed Deer (WDER)
Mapleleaf Mussel (QUAQ)
Pigtoe Mussel (FUFL)

G. Top Species Refused Clearance

In an effort to identify the most commonly refused species, we assessed the top 10 species codes refused, by number of shipments, for 1997 to 2003. Again, it should be noted that LEMIS species codes do not necessarily equate to taxonomic species, and for each year reviewed as few as two and as many as five of the top 10 refused species codes were species-level codes, while the remainder were codes representing genus or higher taxonomic level species groups. This assessment was done for imports and exports combined, though it is clear that the vast majority of these refusals were for imports. This assessment also considered the various modes of transport for these refusals. However, we did not at this stage analyze the types of commodities involved in these shipments or the overall volumes refused.

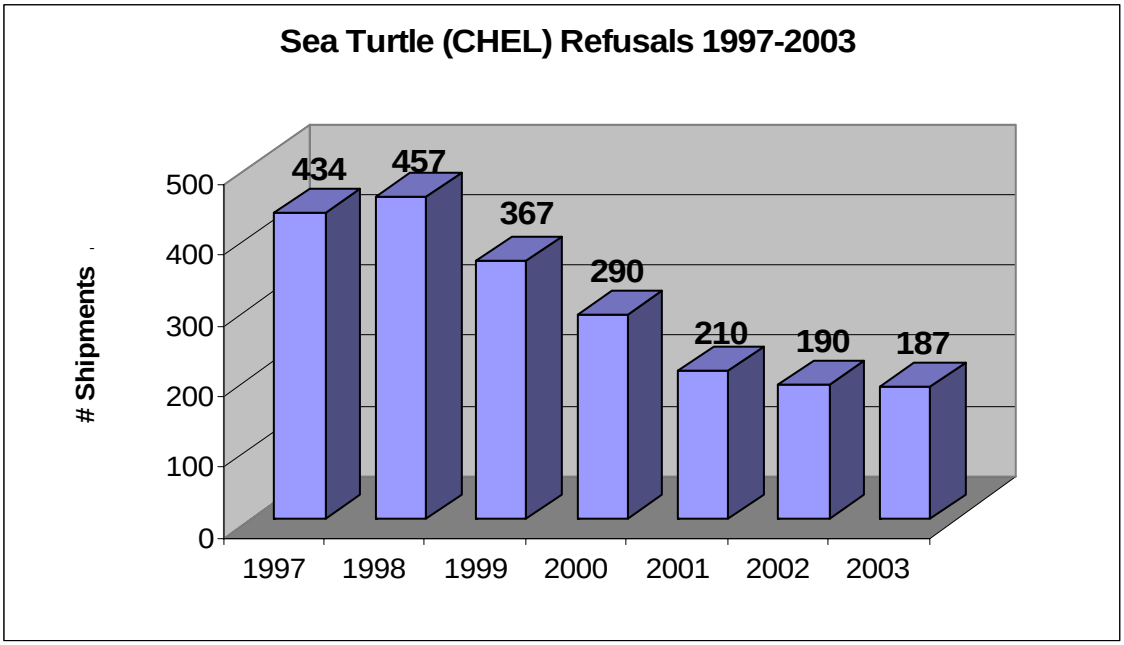
It should also be taken into account that a code's presence (or absence) in the top 10 is not a full measure of the number of refusals for a given species or species group. For example, though the sea turtle family Cheloniidae (CHEL) appears in each year, no species-specific sea turtle code (e.g., EREI for hawksbill turtle or CHEM for green turtle) appears in the top 10. Nonetheless, there have been numerous shipments refused that were recorded for these species. Only by examining each of the possible species codes for sea turtles would we have a clear picture of overall sea turtle shipment refusals. However, there are several valuable findings in examining just the top 10 species codes refused, as outlined below.

Over the seven-year review period, a total of 22 different species codes appeared in one or more years. Though this represents some evolution in the types of shipments most frequently refused, there are a number of similarities that are present as well. For example, five of the species codes refer to crocodilians, two refer to elephants, two refer to musk deer, two refer to sturgeon, and two refer to pythons.

Sea Turtles (CHEL)

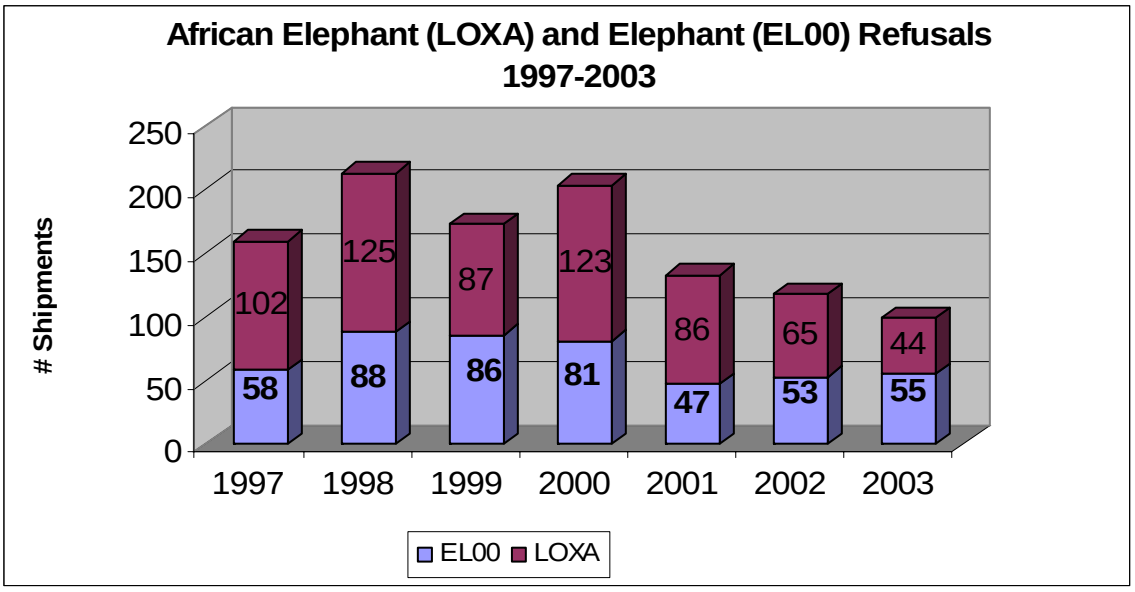
In each of the seven years reviewed, sea turtles were by far the most refused species code, though there was a clear declining trend in the number of refusals during the review period. In 1997, there were 434 sea turtle shipments refused, with a relatively steady decline each year to 187 refusals in 2003. In 1997, nearly all of these refusals were recorded as involving personal baggage (72%) or air cargo (26%). The proportion of air cargo and personal baggage refusals declined to 36% and 28% respectively in 2003, while nearly 18% of refused shipments were not assigned a mode of transport. Vehicle and ocean cargo modes of transport made up 9% and 7% of refused shipments, respectively, in 2003. Border and vehicle refusals were generally low throughout the review period, though vehicle refusals peaked at 27% in 2000.

In 1997, the majority (56%) of seizures were sea turtle leather shoes/boots, while the second highest seizure by wildlife description was jewelry at nearly 15%, followed by eggs at 11%. In 2003, only 41% of seizures were shoes/boots, while egg seizures climbed proportionally to 26%. Jewelry refusals accounted for only a very small percentage of overall refusals. Thus, it appears that a drop primarily in sea turtle leather shoes/boots recorded as CHEL led to a drop overall in refusals for this species code.



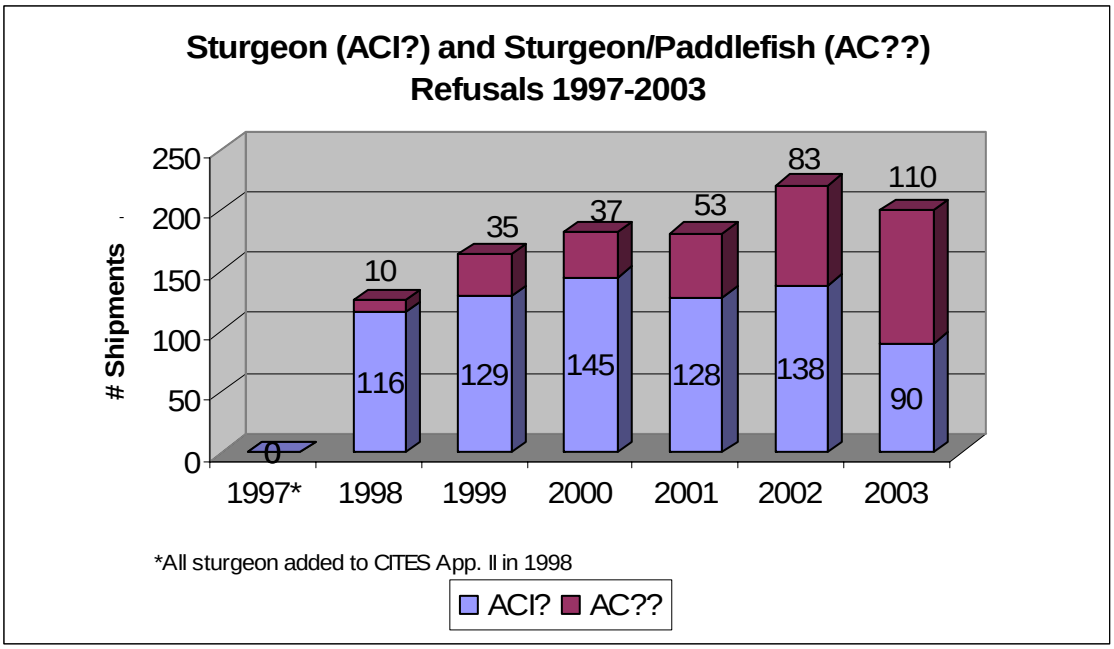
Elephants (LOXA and EL00)

The species codes for African elephant (LOXA) and the family Elephantidae (EL00) appeared in the top 10 in each year for 1997 to 2000. LOXA also appeared in 2001, while neither species code was in the top 10 for 2002-2003. Elephant shipment refusals showed a general decline since their peaks in 1998, from a combined total of 213 refusals to only 99 refusals. In each year reviewed, the vast majority of refusals were reported as air cargo or personal baggage mode of transport. Refusals were almost exclusively ivory products, primarily recorded as ivory jewelry and ivory carvings.



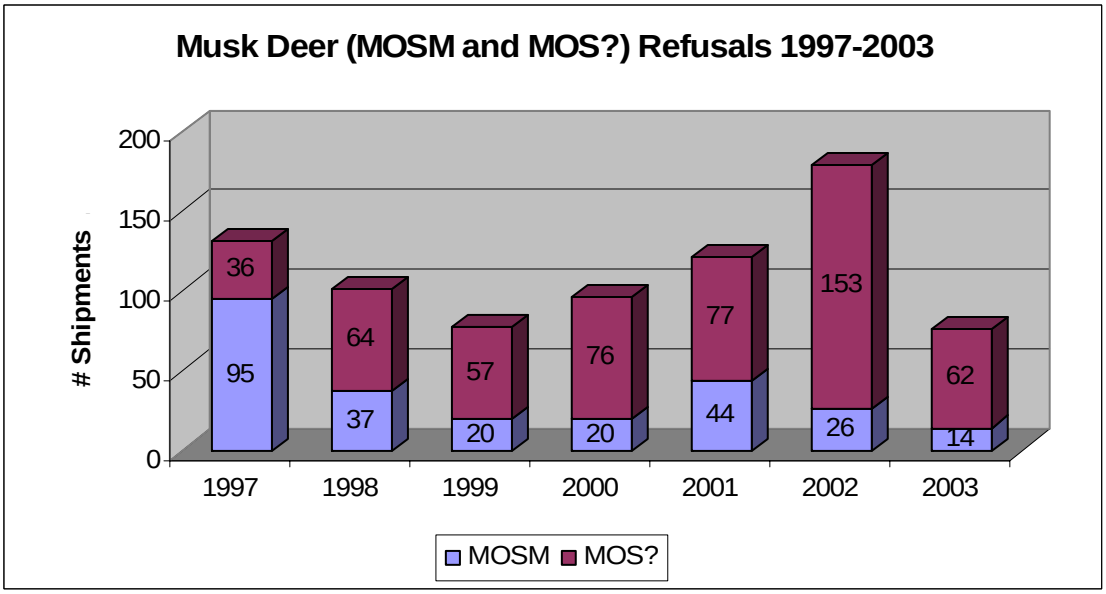
Sturgeon (ACI?) and Sturgeon/Paddlefish (AC??)

Since all previously unlisted sturgeon and paddlefish were added to CITES Appendix II in April 1998, there was a dramatic rise in the number of refusals, almost exclusively of caviar, recorded at the sturgeon genus level *Acipenser* (ACI?), or at the sturgeon/paddlefish order Acipenseriformes (AC??). ACI? was found in the top 10 species codes in each year, beginning in 1998, whereas AC?? was found in the top 10 only in 2002 and 2003. Refusals for these two codes combined rose from 126 shipments in 1998 to 221 shipments in 2002. Interestingly, approximately 68% of all refusals recorded as ACI? were also reported as air cargo mode of transport, with the remainder primarily involved personal baggage. In contrast, nearly 90% of AC?? refusals were reported as personal baggage mode of transport, with most of the remainder being reported as air cargo. Additionally, it is worth noting that there were numerous seizures of caviar reported at the species level (e.g., Beluga sturgeon) that are not captured in these numbers because none of the individual species codes was among the top 10 refusals overall.



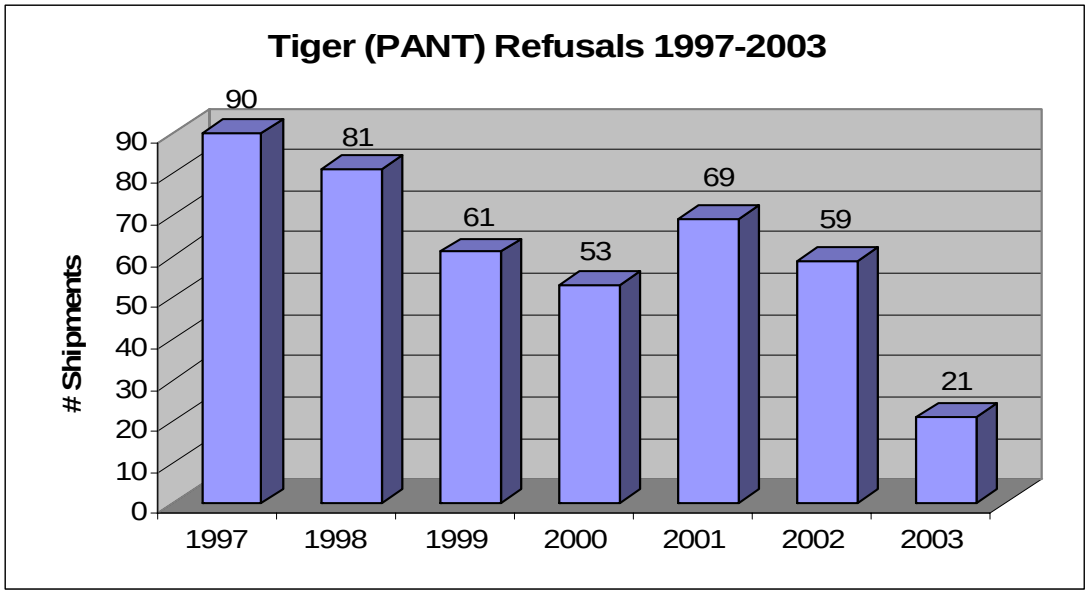
Musk Deer (MOSM and MOS?)

Musk deer appeared in the top 10 under two different species codes, both of which refer to the musk deer genus *Moschus*, in 1997 (MOSM) and in 2000-2002 (MOS?), almost exclusively as medicinal products, primarily being imported from China. A review of all refusals for these two species codes shows a decline for 1997-2000 and an increasing trend for 2000-2002, before declining again in 2003. Most refusals were reported as personal baggage mode of transport, with the remainder primarily involving air cargo.



Tiger (PANT)

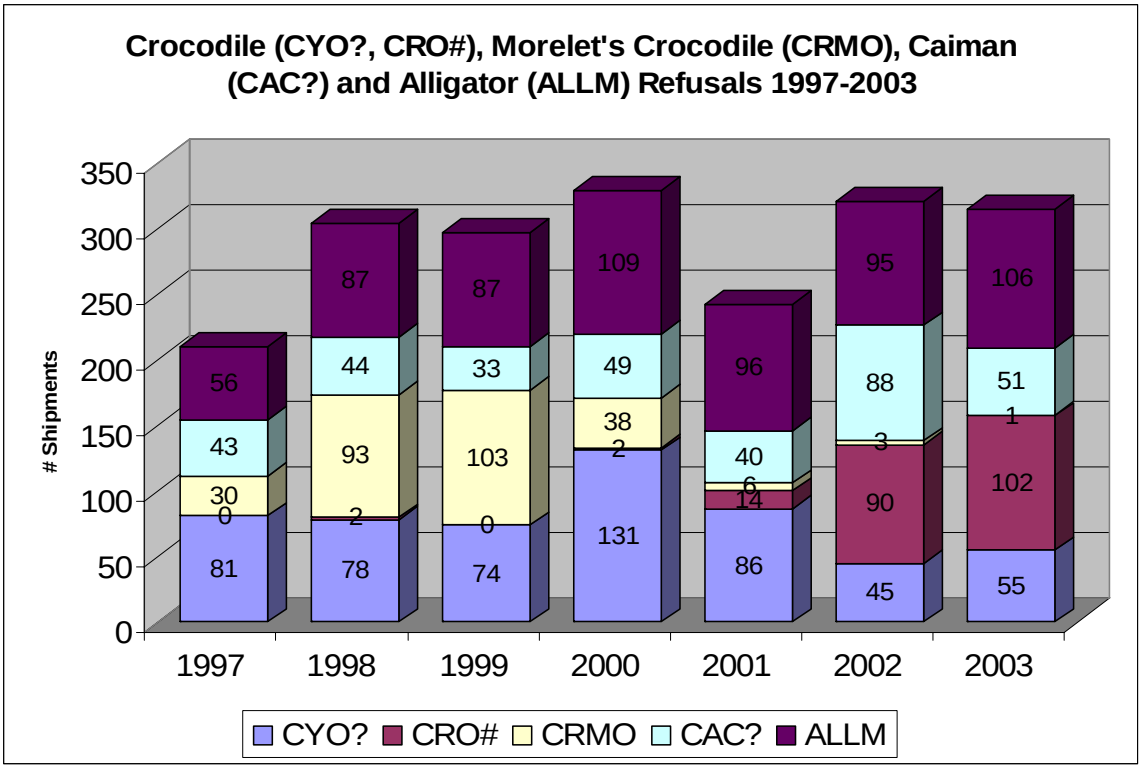
The tiger was in the top 10 species codes refused in only 1997 and 2001, but showed a general decline in refusals throughout the review period from 90 refusals in 1997 to 21 in 2003. The vast majority of these refusals involved manufactured medicines containing or claiming to contain tiger bone. The primary mode of transport for these refusals was personal baggage, followed closely by air cargo.



Crocodile (CYO? and CRO#), Morelet's Crocodile (CRMO), Caiman (CAC?) and Alligator (ALLM)

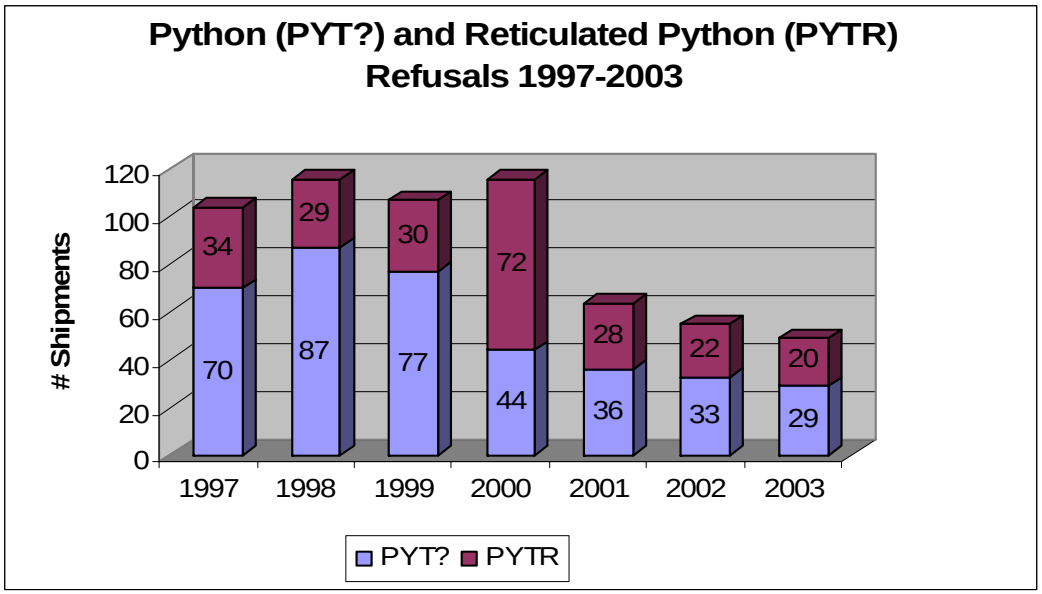
Several species codes related to crocodilians appeared in the top 10 species codes refused in one or more years during the review period. Most refusals under all species codes involved shoes/boots and other leather products. One of two codes referring to crocodiles at the genus level (*Crocodylus*) was found in all but one year (CYO? in 1997, 1999-2001; CRO# in 2002-2003); the code for Morelet's crocodile (CRMO) was found in the top 10 in 1998-1999; the code for the common caiman (CAC?) was found in 2002; and the code for American alligator (ALLM) was found in 1999-2003. An assessment of all refusals for all five species codes shows a relatively consistent number of refusals per year, with a variety of increases and declines among the codes during the period reviewed. Alligator refusals appear to show an increasing trend, while Morelet's crocodile refusals declined to almost zero by 2003. Though CYO? and CRO# can be used interchangeably, it appears that most refusals are now being recorded under the latter species code.

The most frequent mode of transport varied for each of these species codes as well. Crocodile refusals were primarily recorded as personal baggage in most years, though refusals at the border far outnumbered personal baggage refusals in 2000, and most shipments refused in 2003 showed no transport mode. For Morelet's crocodile, over 70% of refusals were reported as personal baggage in 1998, whereas nearly 80% of refusals in 1999 were reported as border. Caiman refusals were primarily personal baggage, whereas American alligator refusals were almost exclusively air cargo.



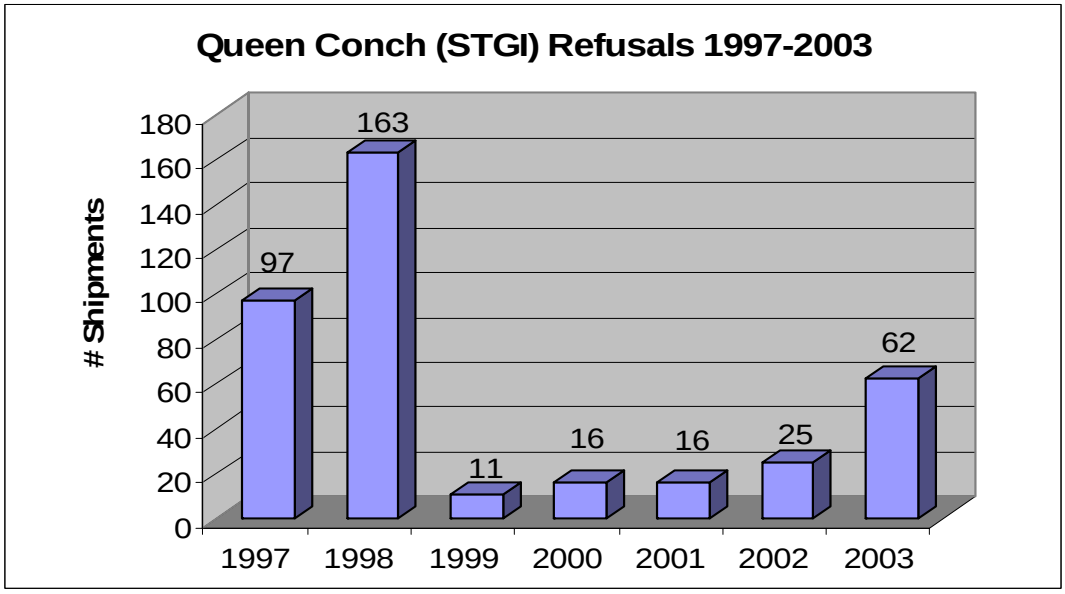
Python (PYT?) and Reticulated Python (PYTR)

The species code for the genus *Python* was found in the top 10 species codes refused in 1997-1999, while the species code for reticulated python was found in 2000. Neither species code was among the top 10 in 2001-2003. An assessment of all refusals for the two species codes shows a general decline since 2000. The most frequent mode of transport for PYT? refusals was mail, followed closely by air cargo and personal baggage, whereas 82% of refusals of PYTR in 2000 were air cargo. The primary products refused for each species code were shoes/boots and other leather products.



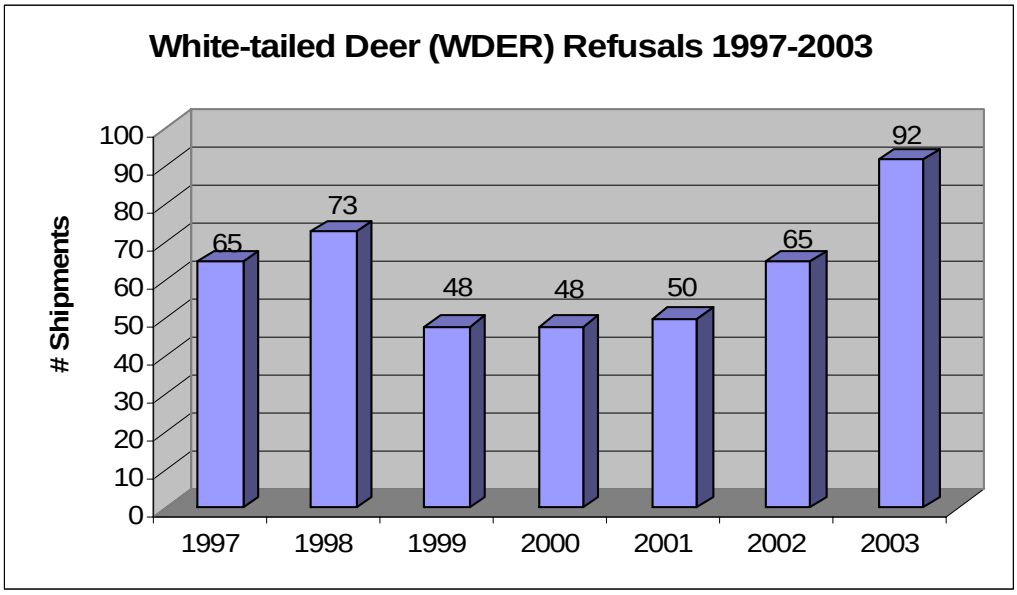
Queen Conch (STGI)

Queen conch was the third and second most recorded species code refused in 1997 and 1998, respectively, before falling out of the top 10 entirely for the remainder of the review period. The peak in queen conch refusals was 163 shipments in 1998 with a low of only 11 in the following year, with the vast majority of refusals involving small numbers of shells imported to San Juan, Puerto Rico. It is worth noting that, for much of 1999-2001, there was no wildlife inspector stationed at San Juan. The mode of transport for these refusals was almost exclusively recorded as air cargo.



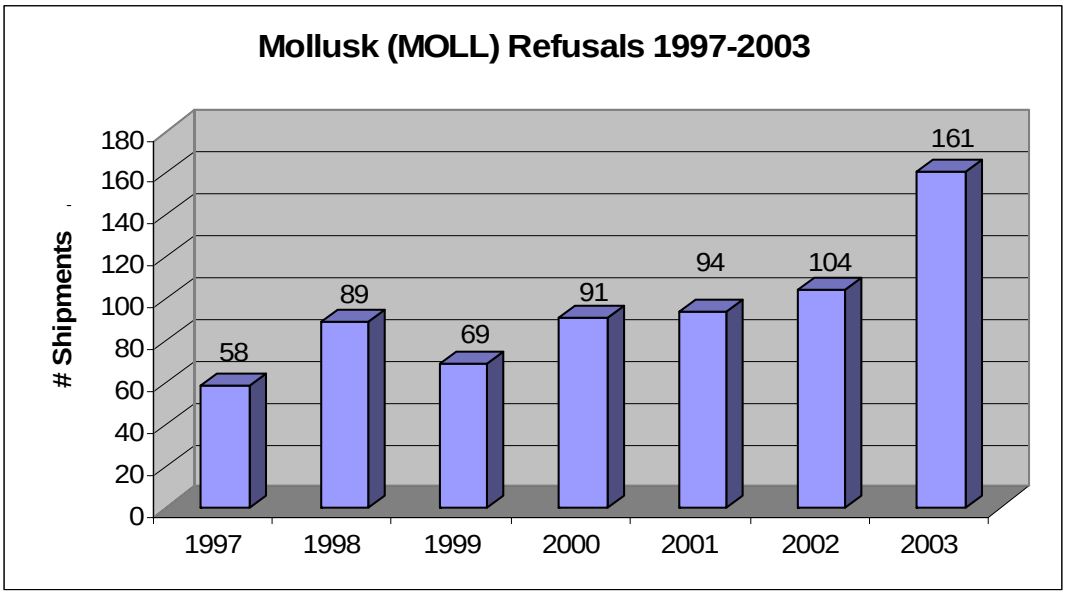
White-tailed Deer (WDER)

The species code for white-tailed deer was among the top 10 refusals for 1997 and 2003. An analysis of all refusals for this species code during the review period shows a general increase in refusals since 1999, with a high of 92 refused shipments in 2003. Sixty-eight percent of refusals in 1997 were reported as personal baggage mode of transport, while over 70% of refusals were reported as vehicle mode of transport in 2003. The commodity refused was variable and primarily included horns, meat, trophies and food, mostly imported from Mexico with smaller numbers from Canada.



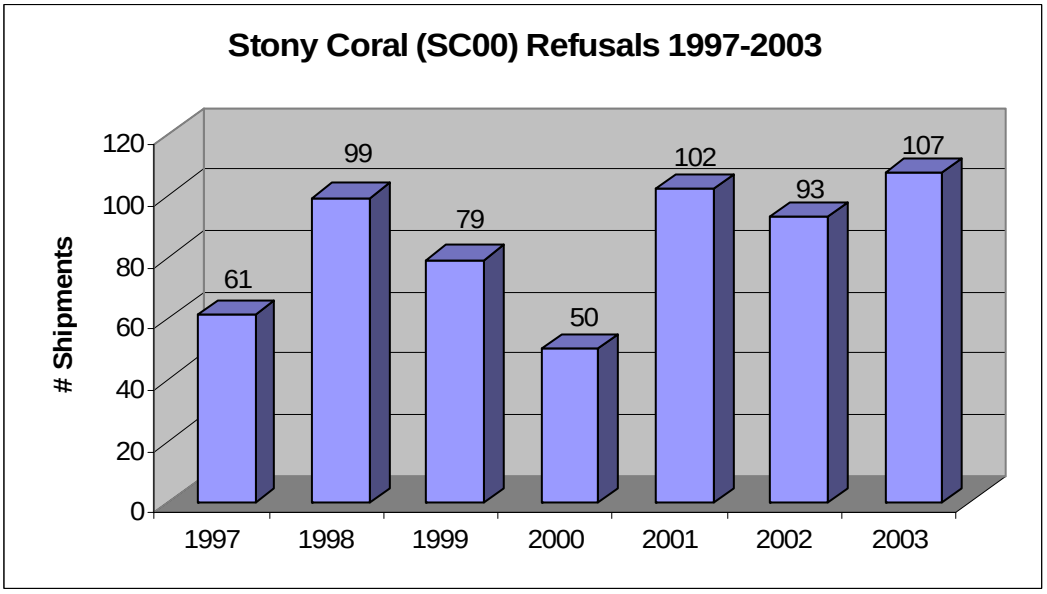
Mollusks (MOLL)

Mollusks were found among the top 10 species codes refused in 1998 and 2000-2003, showing a clear increasing trend and rising to the second most commonly refused shipment in 2003, with 161 refusals. The majority of refusals were recorded as air cargo mode of transport. Most refused shipments involved shells, shell products or jewelry from Mexico and several Southeast Asian countries. Given the use of a very general species code for these refusals, presumably most refusals are the result of shipments originating in countries that have blanket prohibitions on the export of wildlife without a permit.



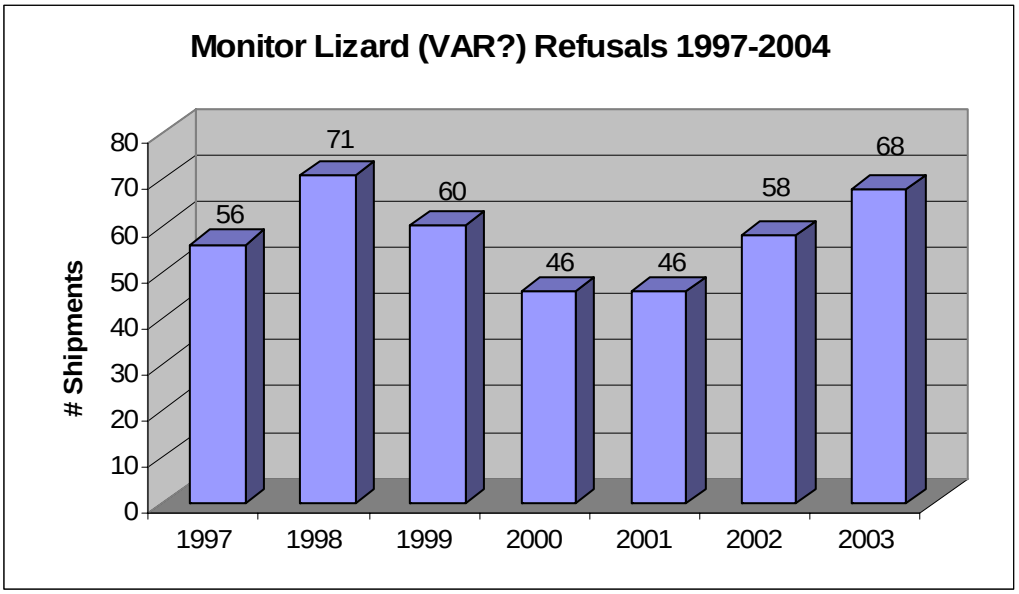
Stony Coral (SC00)

Stony coral refusals were among the top 10 in every year except 2000, with no clear trend but with three of the four highest numbers of refusals during the review period occurring in 2001-2003. Refusals were relatively evenly split between three modes of transport: air cargo, mail and personal baggage. Refusals almost exclusively involved raw coral (such as dried coral skeletons not identified by species), primarily from Southeast Asian countries such as the Philippines.



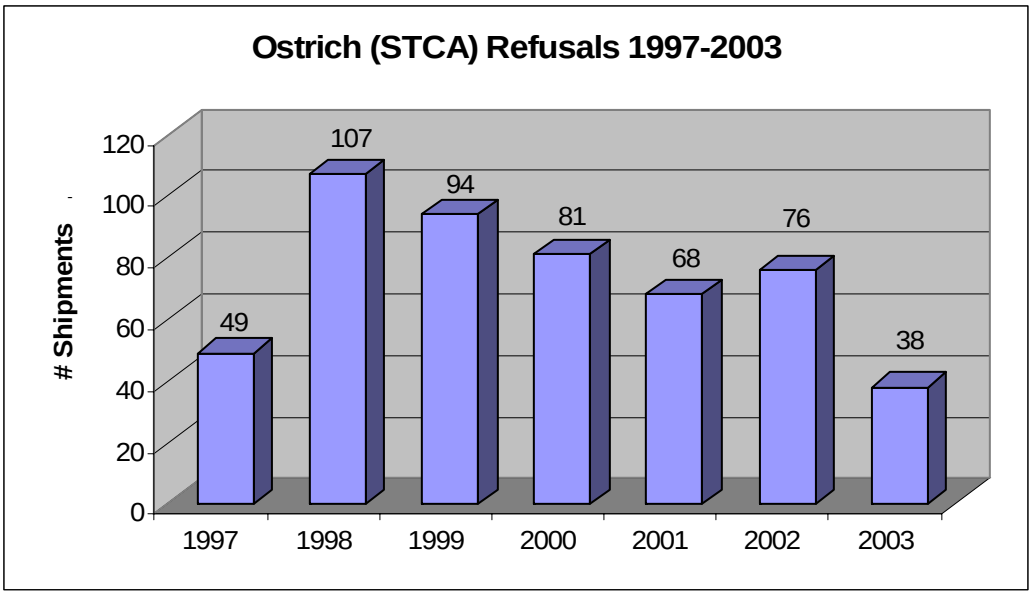
Monitor Lizards (VAR?)

The species code for monitor lizards at the genus level *Varanus* only occurred in the top 10 in 2003 with 68 refusals, but was consistently just outside of the top 10 in other years in the review period. Refusals appear to be roughly evenly split among the air cargo, mail and personal baggage modes of transport. An analysis of all monitor lizard refusals throughout the review period showed no clear trend. Most refusals involved small and large leather products, shoes/boots and meat, many of which were exports from Nigeria or re-exports from Mexico.



Ostrich (STCA)

The species code for ostrich appeared in the top 10 species codes refused for five straight years—1998-2002, and appeared to show a general declining trend during that time. The number of refusals was cut in half from 2002 to 2003. Thirty-five percent of refusals were air cargo mode of transport, followed by personal baggage (19%), mail (13%), vehicle (10%) and border (9%). The main refusal was shoes/boots, followed by large and small leather products and eggs. Most of these refusals were imports from Mexico.


Ostrich (STCA) Refusals 1997-2003
Shipments
120
100
80
60
40
20
0
49
107
94
81
68
76
38
1997
1998
1999
2000
2001
2002
2003

VI. Port by Port Analysis

An assessment of wildlife trade at the national level provides an overview of the U.S. role as both a consumer and supplier in the international wildlife trade and suggests general trends in the scope, scale and components of the trade. This section offers a different perspective that may also be of interest, looking briefly at U.S. wildlife trade on a port by port basis.

For each of some 60 ports, we tallied the number of wildlife imports and exports processed annually for the years 1998 through 2003 as well as the total number of import and export shipments for the period examined by our review. The ports covered include those operating for all or part of this period as "designated" ports – ports authorized by the Service to handle wildlife trade. These locations include Anchorage (which began operating as a designated port in 2002), Atlanta, Baltimore, Boston, Chicago, Dallas/Fort Worth, Honolulu, Los Angeles, Miami, New Orleans, New York, Newark, Portland, San Francisco, and Seattle. Service regulations funnel most wildlife trade through designated ports to facilitate our efforts to ensure that shipments comply with wildlife protection laws.

This section also provides import/export data for a number of other ports that are staffed or serviced by our wildlife inspectors. These locations include ports on or near the Nation's borders with Canada and Mexico, which are authorized to process wildlife trade moving between those countries and the United States. They also include ports that handle other specific types of trade or ports where shipments can be processed with special permits.

Imports by Port

Not surprisingly, 13 of the 15 designated ports were found among the top 20 ports in the table that follows, with Portland and New Orleans being the only designated ports outside of the top 20 import ports. New York, Los Angeles and Miami combined accounted for over 54% of all import shipments recorded in LEMIS.

A number of ports showed dramatic growth in import volume during the review period, including New York, Los Angeles, Anchorage, Newark, Boston, Blaine, Atlanta, Portal, and Pembina, among others. It is interesting to note the large number of shipments imported at numerous small border ports, perhaps the most striking of which is Champlain. Champlain, which was first staffed by a wildlife inspector in 2002, had the 17th highest import total for the six-year period, despite essentially only having two years worth of imports included in this assessment.

Number of Import Shipments by Port (1998-2003)							
Port	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**Total**
New York, NY	12,645	14,575	20,837	20,692	23,625	26,454	118,828
Los Angeles, CA	12,664	12,985	14,576	16,053	17,689	18,586	92,553
Miami, FL	5,770	6,742	7,165	7,255	7,188	6,668	40,788
Anchorage, AK	2,546	2,792	3,974	3,638	8,496	12,198	33,644
San Francisco, CA	4,186	5,328	5,356	5,820	4,034	4,331	29,055
Newark, NJ	3,031	3,997	3,904	4,178	5,522	7,338	27,970
Chicago, IL	3,346	3,514	4,248	5,310	5,335	4,472	26,225
Dallas/Fort Worth, TX	2,251	2,433	2,909	2,918	3,052	3,336	16,899
Seattle, WA	1,992	2,099	2,279	2,464	2,424	2,400	13,658
Honolulu, HA	1,981	1,895	2,244	2,268	2,001	1,868	12,257
Blaine, WA	1,320	1,509	1,819	1,785	2,017	2,202	10,652
Atlanta, GA	1,035	1,576	2,119	1,972	1,815	1,936	10,453
Pembina, ND	1,168	1,244	1,477	2,162	2,045	2,281	10,377
Buffalo/Niagara Falls, NY	1,335	1,470	1,118	2,041	1,659	1,887	9,510
Detroit, MI	1,048	959	987	1,592	1,574	995	7,155
Minneapolis/St. Paul, MN	797	1,077	1,354	1,387	1,207	1,072	6,894
Champlain, NY	0	0	0	3	2,483	4,233	6,719
Boston, MA	740	1,153	1,059	1,005	1,125	1,434	6,516
Baltimore, MD	911	910	1,067	1,027	1,261	1,192	6,368
Sault Ste. Marie, MI	1,337	1,065	1,524	1,318	431	29	5,704
Houston, TX	704	859	896	904	865	939	5,167
Sweetgrass, MT	437	825	586	824	929	897	4,498
Calais, ME	467	226	964	578	1,313	949	4,497
Houlton, ME	705	706	936	133	848	892	4,220
Sumas, WA	118	142	919	930	1,011	976	4,096
Agana, Guam	621	718	900	733	550	531	4,053
Tampa, FL	537	649	842	697	657	594	3,976
El Paso, TX	848	726	703	610	573	510	3,970
International Falls, MN	1,065	610	558	126	694	800	3,853
Portland, OR	459	527	626	719	784	640	3,755
Portal, ND	230	369	666	559	805	782	3,411
Port Huron, MI	249	269	1,220	823	453	120	3,134
San Diego/San Ysidro, CA	352	510	534	496	594	638	3,124
Dunseith, ND	362	326	285	377	377	524	2,251
Eastport, ID	73	85	400	504	446	532	2,040
Nogales, AZ	272	231	277	257	250	368	1,655
Grand Portage, MN	467	210	272	11	293	390	1,643
Denver, CO	31	29	325	376	375	436	1,572
Laredo, TX	208	185	226	240	130	396	1,385
Brownsville, TX	129	268	227	135	196	276	1,231
New Orleans, LA	212	236	158	175	169	91	1,041
Golden, CO	251	349	56	1	1	0	658
Washington Dulles, VA	126	134	107	89	83	86	625
Alcan, AK	76	122	71	132	42	161	604

Number of Import Shipments by Port (1998-2003) (cont.)							
Port	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**Total**
Highgate Springs, VT	79	36	51	119	134	136	555
Derby Line, VT	107	18	3	240	69	106	543
Calexico, CA	56	33	15	15	19	401	539
San Juan, Puerto Rico	219	18	2	5	51	108	403
Raymond, MT	96	86	14	76	35	16	323
Philadelphia, PA	13	19	32	23	18	26	131
Fairbanks, AK	15	22	31	31	6	24	129
Other Port (OT)	94	17	2	2	1	3	119
Cleveland, OH	19	27	17	19	6	0	88
Norfolk, VA	0	1	0	0	3	77	81
Juneau, AK	12	53	7	1	0	0	73
Jackman, ME	2	22	11	4	16	7	62
Saipan	0	0	0	47	0	2	49
Lukeville, AZ	4	3	0	7	3	5	22
Douglas, AZ	0	0	0	5	3	7	15
Del Rio, TX	0	0	1	0	0	1	2
Other port (OH)	1	0	0	1	0	0	2

Exports by Port

As with imports, the top 20 export ports consisted primarily of designated ports, with Boston being the only designated port outside of the top 20. Very few ports, however, showed substantial increases in the number of exports, while several showed significant declines, including Los Angeles, Miami and New York. Tampa had the seventh highest export total and exhibited a dramatic increase in exports until 2001, followed by an equally sharp decline. Los Angeles, Miami and New York combined accounted for over 40% of all export shipments.

Number of Export Shipments by Port (1998-2003)							
Port	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**Total**
Los Angeles, CA	3,614	3,412	3,483	3,106	3,029	2,866	19,510
Miami, FL	2,743	2,865	2,680	2,444	2,513	2,254	15,499
New York, NY	3,058	2,662	2,466	2,275	2,651	2,386	15,498
Baltimore, MD	2,146	2,278	2,067	1,762	1,631	1,937	11,821
Honolulu, HA	1,367	1,566	1,746	1,507	1,476	1,829	9,491
Dallas/Ft. Worth, TX	972	1,016	1,289	1,193	1,227	1,286	6,983
Tampa, FL	914	931	1,398	1,977	1,053	615	6,888
Seattle, WA	784	918	985	902	888	901	5,378
Chicago, IL	908	877	883	819	786	870	5,143
New Orleans, LA	536	622	673	732	688	728	3,979
Buffalo/Niagara Falls, NY	688	715	565	612	673	643	3,896
Portland, OR	328	415	370	322	281	364	2,080
San Francisco, CA	324	340	383	353	310	331	2,041
Newark, NJ	293	209	324	384	288	439	1,937

Exports by Port and Number of Shipments (cont.)							
Port	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**Total**
Atlanta, GA	272	250	289	469	236	253	1,769
Washington Dulles, VA	239	258	150	247	256	164	1,314
Anchorage, AK	253	172	209	170	182	180	1,166
Minneapolis/St. Paul, MN	249	207	148	144	183	175	1,106
Pembina, ND	199	147	152	211	202	172	1,083
Blaine, WA	232	246	167	162	144	127	1,078
Detroit, MI	143	145	159	199	152	171	969
El Paso, TX	145	157	146	183	146	136	913
Agana, Guam	14	25	546	31	40	40	696
Laredo, TX	191	109	99	114	55	72	640
Boston, MA	82	67	86	96	115	97	543
Sweetgrass, MT	69	118	56	66	96	64	469
Houston, TX	76	104	79	74	64	51	448
Champlain, NY	1	2	5	18	100	218	344
San Diego/San Ysidro, CA	64	71	67	49	37	41	329
Alcan, AK	31	53	33	82	23	43	265
Calais, ME	7	8	62	138	40	9	264
Nogales, AZ	74	56	22	30	33	18	233
Fairbanks, AK	45	51	30	56	9	37	228
Denver, CO	7	2	56	70	44	44	223
Philadelphia, PA	12	15	41	22	35	45	170
Brownsville, TX	38	55	32	10	9	6	150
Sumas, WA	6	4	7	12	16	64	109
Golden, CO	47	54	7	0	0	0	108
Dunseith, ND	13	12	17	16	26	19	103
Portal, ND	31	23	15	14	9	11	103
Sault Ste. Marie, MI	12	17	16	15	11	5	76
Eastport, ID	6	19	13	11	7	11	67
Port Huron, MI	8	8	18	8	13	9	64
Cleveland, OH	11	16	12	4	0	0	43
Houlton, ME	0	1	15	12	11	2	41
Highgate Springs, VT	4	0	1	0	13	8	26
International Falls, MN	0	2	2	5	5	10	24
San Juan, Puerto Rico	10	4	1	2	2	0	19
Juneau, AK	5	2	2	2	0	1	12
Grand Portage, MN	6	0	1	0	0	1	8
Raymond, MT	0	1	3	1	2	0	7
Derby Line, VT	1	1	1	0	1	0	4
Del Rio, TX	0	2	0	0	0	0	2
Jackman, ME	0	0	0	0	2	0	2
Other Port (OT)	2	0	0	0	0	0	2
Douglas, AZ	0	1	0	0	0	0	1
Norfolk, VA	0	0	0	0	1	0	1

VII. Analysis of Three Major Ports

During the six-year period 1998-2003, three designated ports – New York, Los Angeles, and Miami – handled the largest total volume of wildlife trade. As noted in the previous section, trade at these three ports alone constituted over 54 percent of all wildlife imports and over 40 percent of all export shipments recorded in LEMIS. New York handled a total of 134,326 wildlife shipments while inspectors in Los Angeles processed 112,063. Their counterparts in Miami examined 56,287 shipments.

This section takes a closer look at wildlife trade at these three major ports of entry. Factors examined include:

- Total number of shipments imported annually;
- Number of shipments by mode of transport (air cargo, ocean cargo, personal baggage, mail, truck, etc.);
- Number of shipments by purpose (commercial, personal, zoos, hunting trophies, biomedical research, scientific, circus exhibition, etc.); and
- Most traded commodities and the species involved.

We identify significant trends that emerged at each port over the course of the period studied. We also provide some background information about overall international trade and passenger traffic at these ports of entry and identify the facilities covered by Service inspection staff at each location – facilities that in two cases include ocean ports as well as international airports.

New York, New York

Wildlife inspectors in New York are responsible for policing wildlife trade at John F. Kennedy Airport (JFK) and LaGuardia International Airport. JFK processes 16.5 million international passengers, 105,884 international flights, 1.18 million metric tons of international freight, and 79,590 metric tons of mail per year. LaGuardia International Airport processes 925,645 international passengers, 14,683 international flights, 278 metric tons of international freight, and 15,020 metric tons of mail per year (Martinez et al., 2004).

New York City is home to 5th Avenue and the U.S. fashion industry. Fourteen of the top 20 wildlife importers into JFK are high-end dealers of reptile leather, fur and shell products (primarily used for watch dials). Five of the remaining top 20 wildlife importers are tropical fish importers, and the last one is the American Museum of Natural History.

New York is a predominantly commercial port for imports, averaging 16,231 commercial (T) shipments annually for 1997-2003, with a peak of 23,268 commercial shipments in 2003. The number of commercial imports increased 131% from 1997 to 2003. Noncommercial shipments (all codes other than T) averaged 2,263 shipments per year during the same time period and also showed an increasing trend, rising 118% since 1997 and peaking in 2003 with 3,138 shipments. The primary mode of transport of wildlife shipments into New York for 1997-2003 was air cargo (97%).

For 1998-2003, New York's main import commodity reported by number was live animals (mostly tropical fish and invertebrates), averaging 39,289,870 animals per year. This was followed by shell products, averaging 30,484,385 items per year, and jewelry, averaging 6,959,165 items per year. Small leather products (e.g., snake, caiman, lizard, crocodile, alligator, ostrich) averaged 848,486 items per year; shoes (e.g., snake, caiman, lizard, crocodile, alligator, ostrich) averaged 688,765 items per year; skins (e.g., sable, fox, mink, beaver, muskrat, snake, caiman, alligator, lizard) averaged 566,941 items per year; and feathers (e.g., ostrich, turkey, pheasant) averaged 404,980 items per year. Since 2001, shells averaged 1,183,579 items per year. Since 1999, garments (e.g., fox, mink, muskrat, beaver, sable, nutria) averaged 888,036 items per year.

New York's main import commodity reported by weight was live animals (primarily medicinal leeches, tropical fish, and invertebrates), averaging 86,055 kg per year. Eggs, almost exclusively sturgeon caviar, were the second most imported commodity reported by weight, averaging 52,746 kg per year for 1998-2003. Caviar dropped significantly in 2002 to 20,748 kg, which is consistent with a drop in caviar imports to the United States overall in that year, before increasing

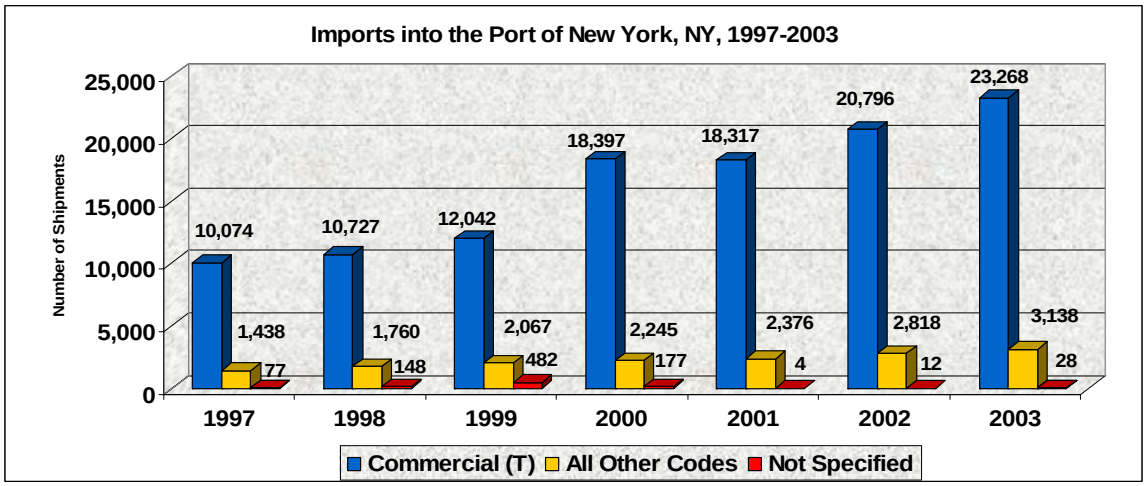
to 82,198 kg in 2003. Feathers (e.g., ostrich, turkey, pheasant) averaged 49,129 kg per year; meat (e.g., elk, deer, sturgeon, conch) averaged 13,030 kg per year; and skin pieces (e.g., marten, fox, raccoon, European brown hare) averaged 1,978 kg per year.

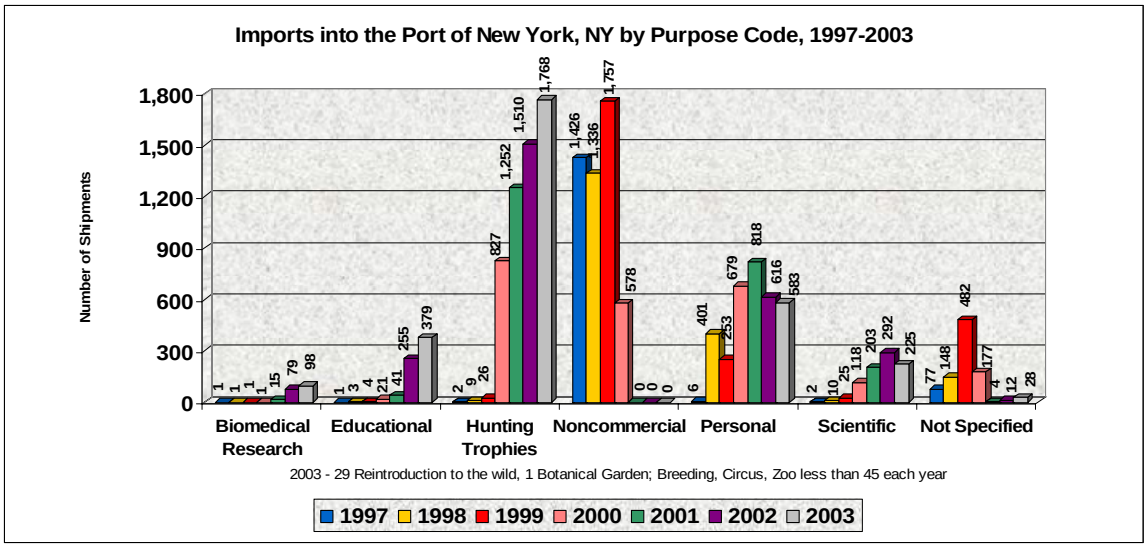
During the same time period, New York's main export commodity by number was skins (e.g., mink, muskrat, alligator, beaver, fox, coyote, fisher), averaging 1,725,926 skins per year. This was followed by live animals (e.g., tropical fish, invertebrates, arachnids, amphibians, reptiles, birds, mammals), averaging 725,630 animals per year; skin pieces (e.g., mink, raccoon dog, coyote), averaging 299,183 pieces per year; trim (e.g., fox, mink, coyote, raccoon dog), averaging 35,829 items per year; garments (e.g., beaver, fox, mink, nutria), averaging 28,306 items per year; and scientific specimens (mostly primate specimens), averaging 17,436 items per year.

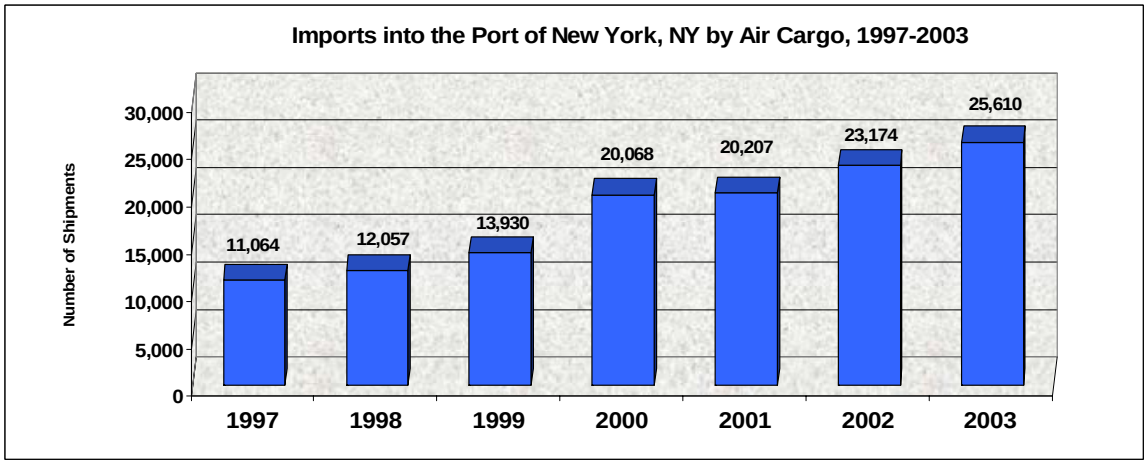
New York's main export commodity by weight was sturgeon and paddlefish caviar, averaging 20,688 kg per year, followed by skin pieces (e.g., fox, beaver, coyote, mink, raccoon dog, sable, deer), averaging 16,543 pieces per year; skins (e.g., deer, mink, fox), averaging 2,669 kg per year for 1998-2002 (skins did not make the top 10 in 2003); and live animals (primarily eels for the food trade), averaging 1,279 kg per year.

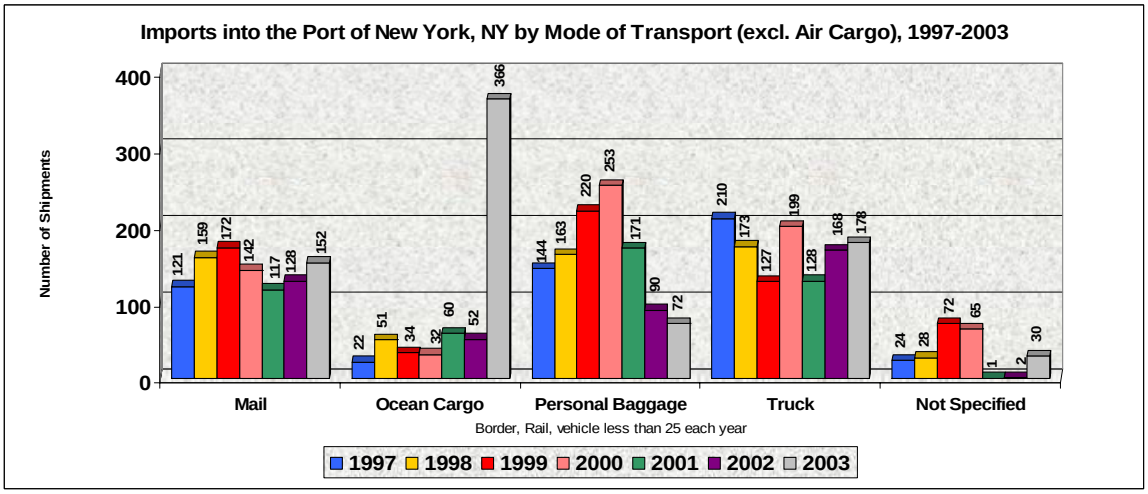
Reference

Martinez, G., Singh, K. and Wilson, D. 2004. The Port Authority of New York and New Jersey June 2004 Traffic Report, JFK Airport. http://www.panynj.gov/




Imports into the Port of New York, NY by Purpose Code, 1997-2003
Number of Shipments
1,800
1,500
1,200
900
600
300
0
Biomedical Research
Educational
Hunting Trophies
Noncommercial
Personal
Scientific
Not Specified
2003 - 29 Reintroduction to the wild, 1 Botanical Garden; Breeding, Circus, Zoo less than 45 each year
1997 1998 1999 2000 2001 2002 2003


Imports into the Port of New York, NY by Air Cargo, 1997-2003
Number of Shipments
30,000
25,000
20,000
15,000
10,000
5,000
0
11,064
12,057
13,930
20,068
20,207
23,174
25,610
1997
1998
1999
2000
2001
2002
2003


Imports into the Port of New York, NY by Mode of Transport (excl. Air Cargo), 1997-2003
Number of Shipments
400
300
200
100
0
Mail
Ocean Cargo
Personal Baggage
Truck
Not Specified
Border, Rail, vehicle less than 25 each year
1997 1998 1999 2000 2001 2002 2003

Los Angeles, California

Wildlife inspectors stationed in Los Angeles are responsible for policing wildlife trade at Los Angeles International Airport (LAX), the International Mail Facility, Ontario International Airport, San Bernardino International Airport, Southern California Logistics Airport, the Port of Long Beach and the Port of Los Angeles. Wildlife inspectors are also sent out to Las Vegas for inspections as needed.

LAX has 1,000 cargo flights each day. International cargo makes up 50% of all cargo moving through LAX. There are nine passenger terminals hosting 78 international and domestic airlines. Passengers and cargo originate from Asia, the Pacific, Europe and the Americas. Approximately 14.6 million international passengers transit through LAX in a given year. LAX processes approximately 46,270 metric tons of mail and 1.03 million metric tons of international air cargo per year. China is the main shipper to/through LAX, followed by Japan, South Korea, Taiwan, the Philippines, Malaysia, and Thailand (Los Angeles World Airlines, 2004). The Port of Los Angeles has 27 ocean cargo terminals, 80 shipping lines, and 12 cruise lines, processing 162 million metric tons of ocean freight from all over the world, including China, Japan, Taiwan, Thailand and South Korea (Port of Los Angeles, 2004). The Port of Long Beach processes in excess of 64.4 million metric tons of ocean cargo each year, 90% of which is from East Asia, specifically China, Japan, South Korea and Taiwan. The Ports of Los Angeles and Long Beach together make the world's third largest ocean cargo complex, after Hong Kong and Singapore (Port of Long Beach, 2004).

Los Angeles is a predominantly commercial port for wildlife imports, averaging 13,580 commercial (T) shipments per year (1997-2003), with a peak of 17,108 shipments in 2003. There was a 58% increase in commercial shipments during the review period. Noncommercial shipments (all codes other than T) averaged 1,313 per year during the same time period. The primary mode of transport into Los Angeles was air cargo (82%), followed by ocean cargo (14%) and all other modes of transport (4%).

For 1998-2003, Los Angeles' main import commodity reported by number was live animals (mostly tropical fish, invertebrates, coral, and reptiles), averaging 121,930,483 animals per year. This was followed by shell products, averaging 76,293,788 items per year; jewelry, averaging 13,676,902 items per year; shells, averaging 7,493,165 items per year; and eggs (mostly duck and Japanese and common quail), averaging 6,486,989 eggs per year. Since 1999, hair products (e.g., elk, moose, white-tailed deer for fishing flies) have appeared in the top 10 imported commodities reported by number, averaging 6,664,154 items per year. Since 2001, live

eggs (e.g., non-CITES fish, rainbow trout) have appeared in the top 10, averaging 4,700,104 eggs per year, though involving only a small number of shipments.

During this period, the main import commodity reported by weight was corals (primarily live rock from Fiji, Indonesia, Marshall Islands and Tonga), averaging 1,270,951 kg per year. This was followed by meat (primarily red deer, bullfrog, ostrich), averaging 1,153,525 kg per year; feathers (mostly ostrich), averaging 855,434 kg per year; and frog legs, averaging 582,331 kg per year.

Los Angeles' main export commodity by number was live animals (primarily tropical fish, invertebrates, red-eared slider turtles, and other reptiles), averaging 21,856,229 animals per year. This was followed by skins (e.g., alligator, caiman, white-tailed deer, nutria, mink, other fur-bearers), averaging 108,434 skins per year; scientific specimens (e.g., primate, marine mammal, reptile, corals, crustaceans), averaging 32,205 specimens per year; and dead specimens (primarily butterflies and fish), averaging 17,195 animals per year.

Main export commodities by weight were shells (primarily freshwater mussels), averaging 1,629,838 kg per year, followed by coral (live rock), averaging 48,179 kg per year; and live animals (e.g., eels, softshell and snapping turtles, corals, catfish), averaging 8,416 kg per year.

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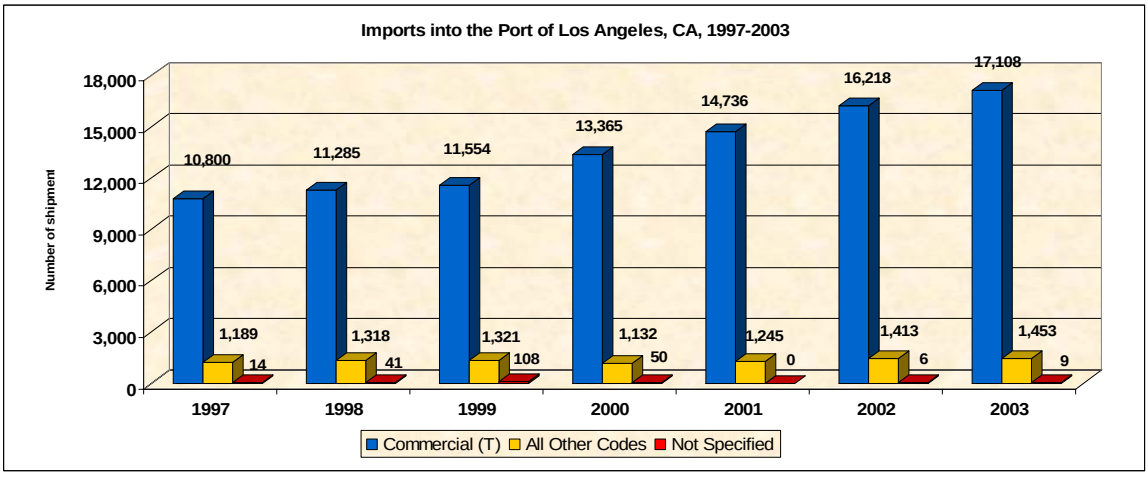
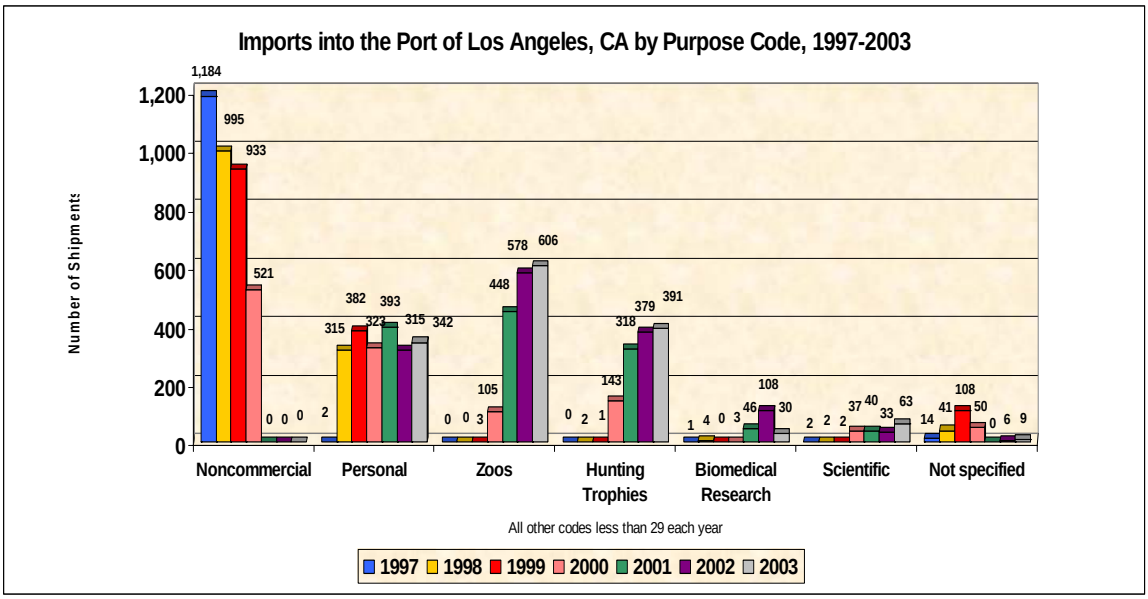
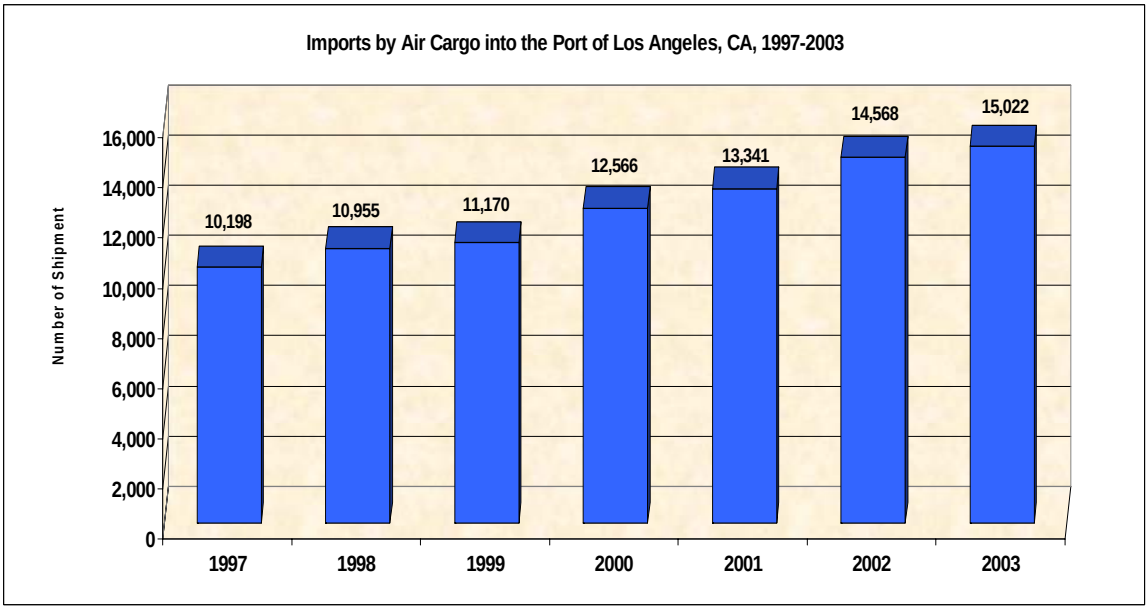
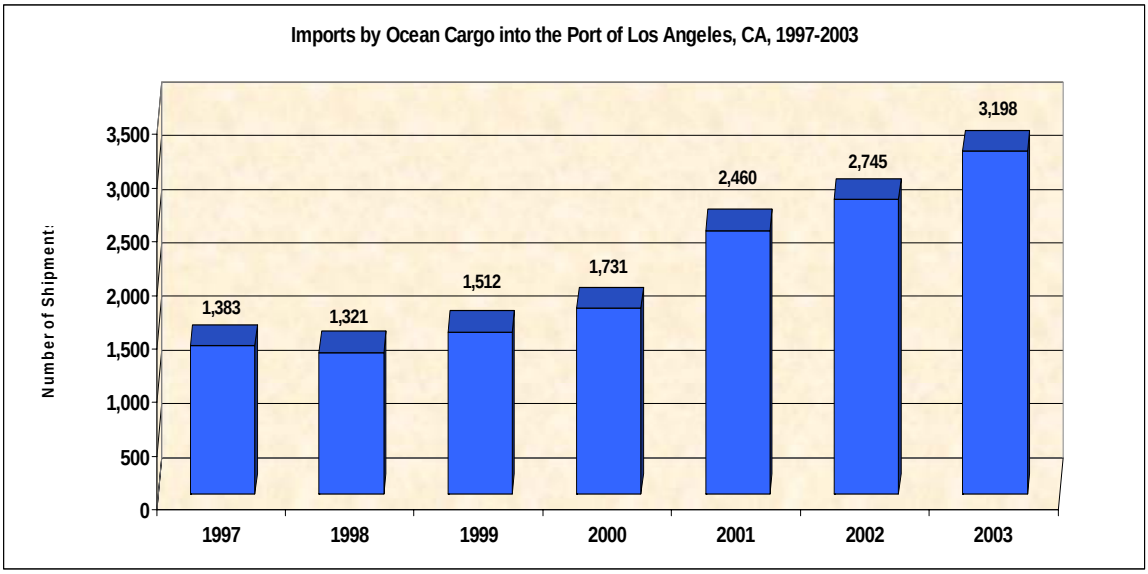
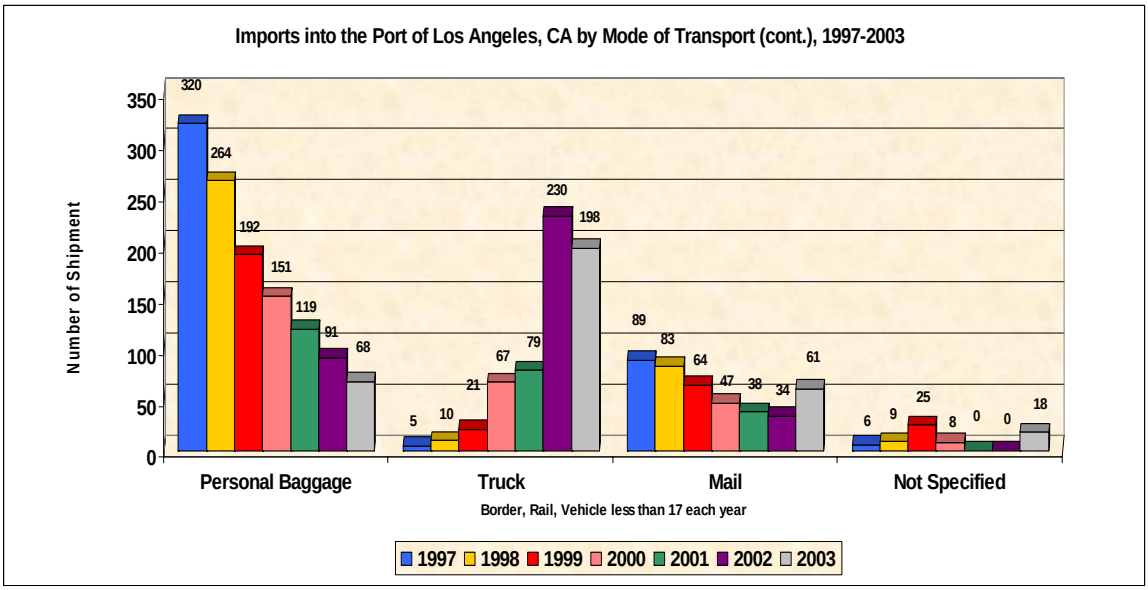



Imports into the Port of Los Angeles, CA by Purpose Code, 1997-2003
Number of Shipments
1,200
1,000
800
600
400
200
0
1,184
995
933
521
0 0 0
2
315
382
323
393
315
342
0 0 3
105
448
578
606
0 2 1
143
318
379
391
1 4 0 3
46
108
30
2 2 2
37
40
33
63
14
41
108
50
0 6 9
Noncommercial
Personal
Zoos
Hunting Trophies
Biomedical Research
Scientific
Not specified
All other codes less than 29 each year
1997 1998 1999 2000 2001 2002 2003


Imports by Air Cargo into the Port of Los Angeles, CA, 1997-2003
Number of Shipment
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
10,198
10,955
11,170
12,566
13,341
14,568
15,022
1997
1998
1999
2000
2001
2002
2003


Imports by Ocean Cargo into the Port of Los Angeles, CA, 1997-2003
Number of Shipments
3,500
3,000
2,500
2,000
1,500
1,000
500
0
1,383
1,321
1,512
1,731
2,460
2,745
3,198
1997
1998
1999
2000
2001
2002
2003


Imports into the Port of Los Angeles, CA by Mode of Transport (cont.), 1997-2003
Number of Shipment
350
300
250
200
150
100
50
0
320
264
192
151
119
91
68
5
10
21
67
79
230
198
89
83
64
47
38
34
61
6
9
25
8
0
0
18
Personal Baggage
Truck
Mail
Not Specified
Border, Rail, Vehicle less than 17 each year
1997 1998 1999 2000 2001 2002 2003

Miami, Florida

Wildlife inspectors in Miami are responsible for processing shipments entering Miami International Airport (MIA), Opa-locka Airport, Ft. Lauderdale International Airport and the Port of Miami.

Considered the gateway to the Americas, MIA processes 13.9 million international passengers each year, with non-stop flights to/from Colombia, Bolivia, Ecuador, Venezuela, Brazil, Chile, Mexico and Honduras, to name a few. It is also a direct link to the Caribbean and Bahamas, with non-stop flights to/from Jamaica, the Netherlands Antilles, Haiti, Trinidad and Tobago, Turks and Caicos, and the Dominican Republic. MIA has 70 international passenger and cargo carriers, 12 foreign cargo-only carriers and three charter passenger/cargo carriers. MIA processes approximately 1.31 million metric tons of international freight per year and 12,430 metric tons of mail.

Ft. Lauderdale International Airport processes 1.3 million international passengers per year, 145,100 metric tons of freight (both foreign and domestic) and 11,320 metric tons of mail each year. Ft. Lauderdale handles flights from Canada, the Bahamas, Europe, Africa and Latin America. In contrast, Opa-locka Airport handles corporate, business and private flights for MIA.

Miami is a predominantly commercial port for wildlife imports, averaging 5,632 commercial (T) shipments per year (1997-2003). Noncommercial (all codes other than T) shipments averaged 983 per year during the same period and appeared to be on an increasing trend from 485 shipments in 1997 to a peak of 1,471 imports in 2001. The primary mode of transport into Miami was air cargo (91%), followed by ocean cargo (7%), personal baggage (1%) and all other modes of transport (1%).

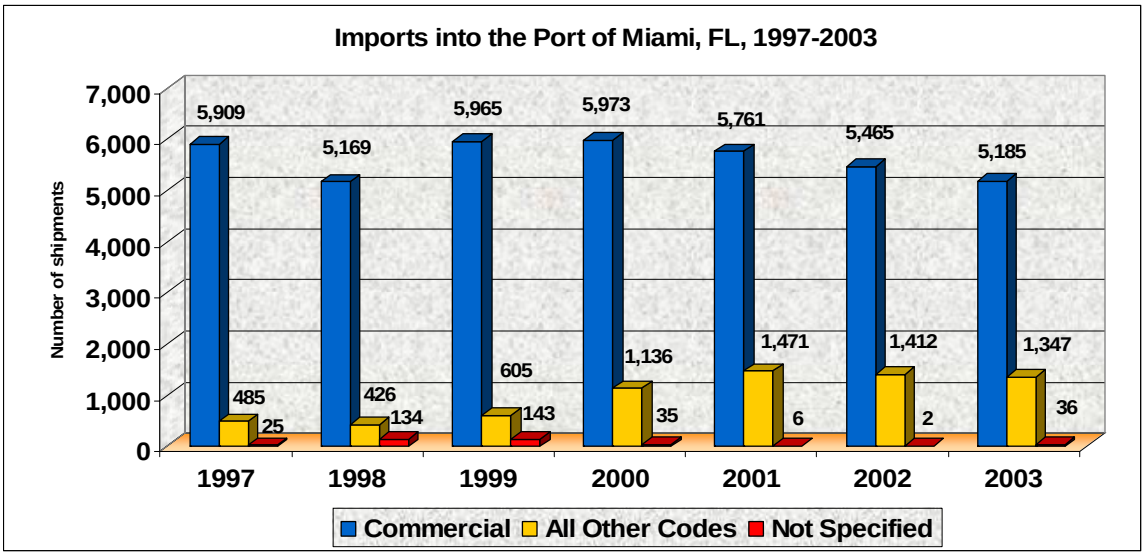
For 1998-2003, Miami's main import commodity reported by number was live animals (primarily tropical fish, invertebrates, reptiles, and butterfly pupae), averaging 36,718,512 animals per year, but rising to 67,101,551 animals in 2002 and then dropping significantly in 2003 to 19,789,347 animals. The dramatic rise in 2002 was due to two shipments of live shrimp totaling 42 million animals. Shell products were the second largest commodity imported by number, averaging 14,642,826 items per year, followed by shells, averaging 7,307,649 items per year, and dead specimens (e.g., butterflies, other insects, starfish, arachnids), averaging 753,733 items per year. Though Miami data suggested substantial declines in most wildlife trade categories for 2003, it should be noted that a backlog of 2003 declarations for Miami awaiting entry into LEMIS is likely responsible for this trend.

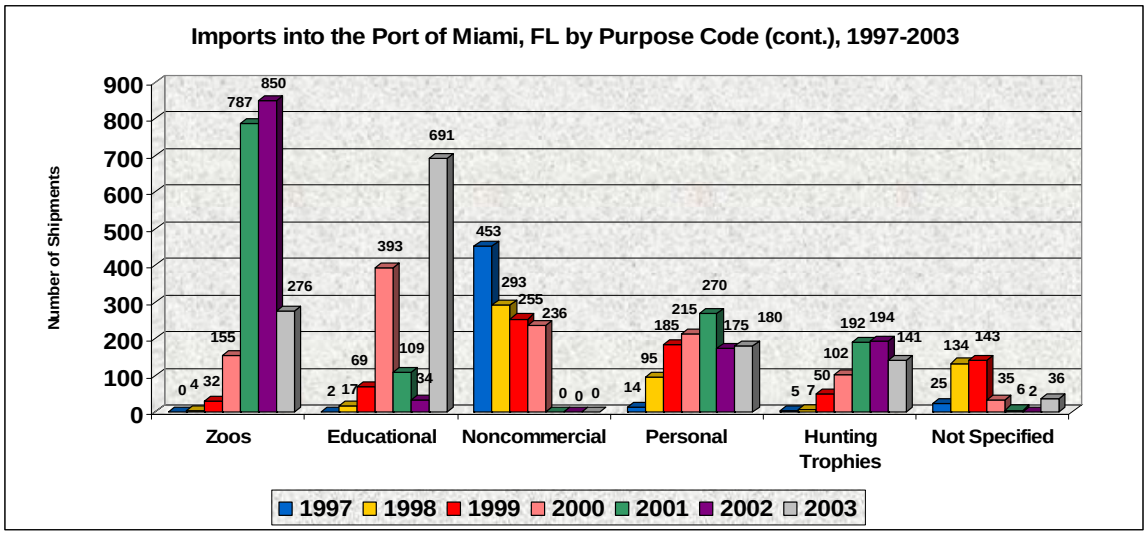
Within the same time frame, Miami's main import commodity reported by weight was meat (primarily queen conch), averaging 1,639,610 kg per year, followed by shells, averaging 283,989 kg per year, and live animals (e.g., coral, conch, sturgeon, invertebrates), averaging 59,702 kg per year. [Note: Coral live rock was often recorded as live (LIV), rather than as coral (COR) during some years.] Shell products were also among the top 10 commodities imported by weight, averaging 57,016 kg per year. Eggs (sturgeon caviar) were prominent for 1998-2002, averaging 24,949 kg per year, but were not among the top 10 in 2003.

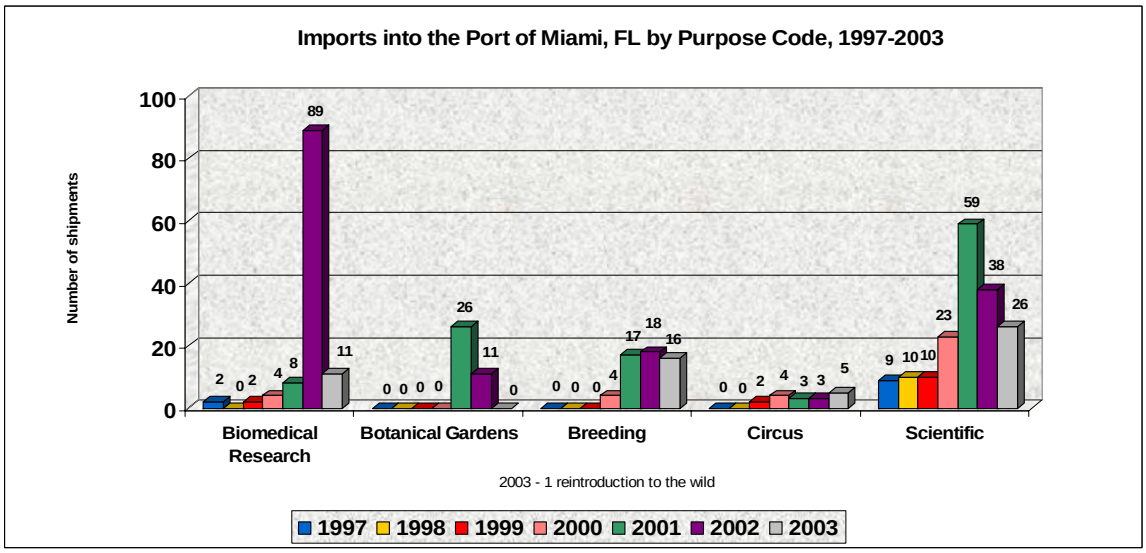
During the same time period, Miami's main export commodity by number was live animals (primarily fish, invertebrates, amphibians, reptiles), averaging 6,892,923 animals per year, distantly followed by skins (e.g., alligator, python, lizard, ostrich) at 52,346 skins per year. Miami's main export by weight was meat (e.g., alligator, bison, conch, ostrich), averaging 6,576 kg per year, followed by live animals (e.g., eels, tilapia, softshell turtles, live rock), averaging 5,250 kg per year.

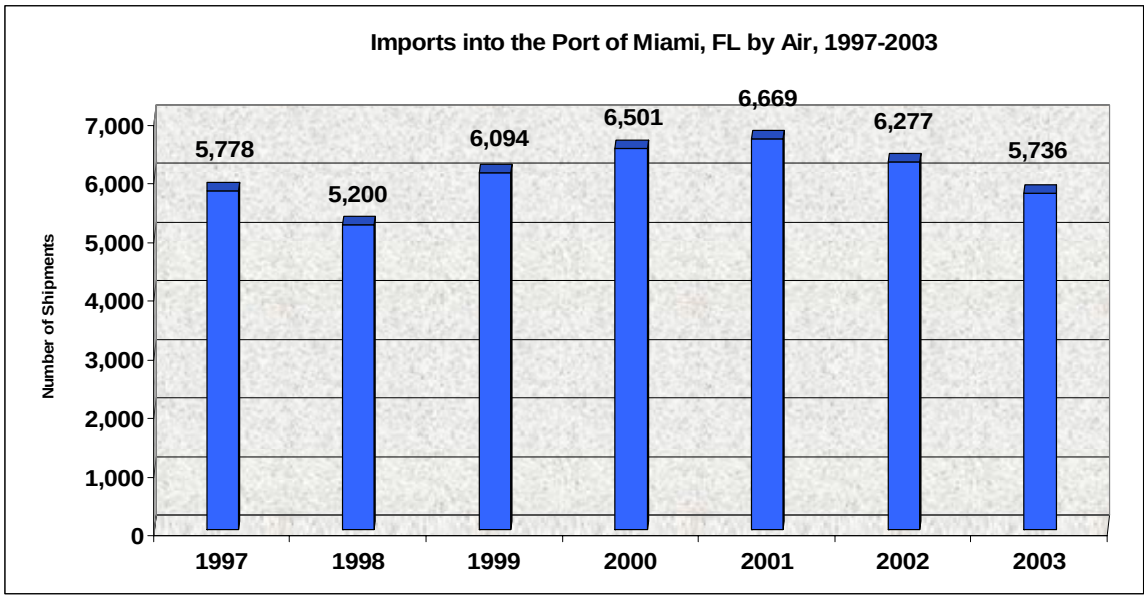
Reference

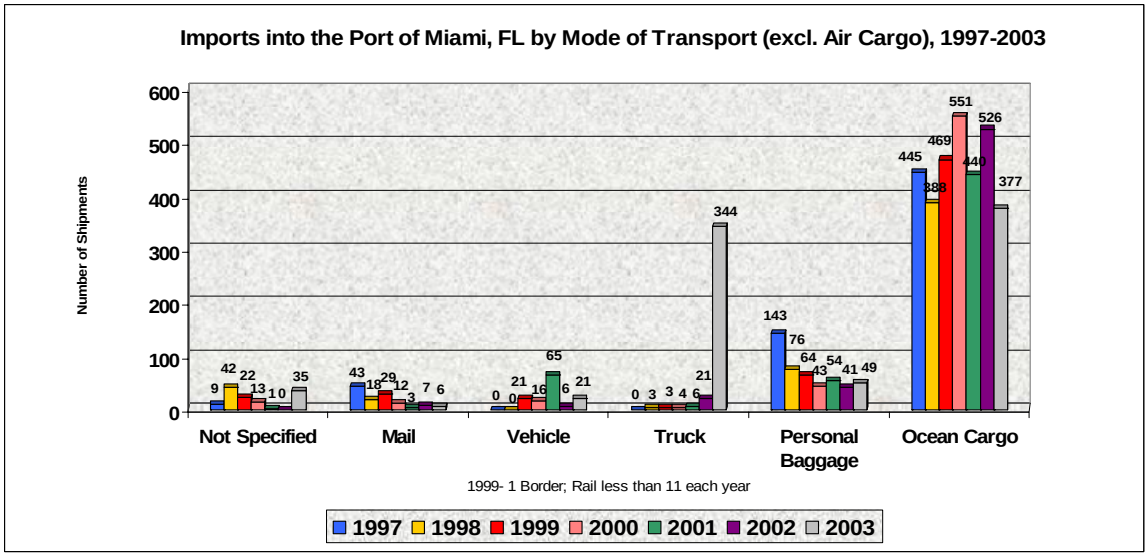
Miami International Airport. 2003. Airport statistics. http://www.miami-airport.com/html/airport_statistics_html




Imports into the Port of Miami, FL by Purpose Code (cont.), 1997-2003
Number of Shipments
900
800
700
600
500
400
300
200
100
0
0 4 32 155 787 850 276
2 17 69 393 109 34 691
453 293 255 236 0 0 0
14 95 185 215 270 175 180
5 7 50 102 192 194 141
25 134 143 35 6 2 36
Zoos
Educational
Noncommercial
Personal
Hunting Trophies
Not Specified
1997 1998 1999 2000 2001 2002 2003


Imports into the Port of Miami, FL by Purpose Code, 1997-2003
Number of shipments
100
80
60
40
20
0
2 0 2 4 8 89 11
0 0 0 0 26 11 0
0 0 0 4 17 18 16
0 0 2 4 3 3 5
9 10 10 23 59 38 26
Biomedical Research
Botanical Gardens
Breeding
Circus
Scientific
2003 - 1 reintroduction to the wild
1997 1998 1999 2000 2001 2002 2003


Imports into the Port of Miami, FL by Air, 1997-2003
Number of Shipments
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
5,778
5,200
6,094
6,501
6,669
6,277
5,736
1997
1998
1999
2000
2001
2002
2003


Imports into the Port of Miami, FL by Mode of Transport (excl. Air Cargo), 1997-2003
Number of Shipments
600
500
400
300
200
100
0
Not Specified
Mail
Vehicle
Truck
Personal Baggage
Ocean Cargo
1999- 1 Border; Rail less than 11 each year
1997
1998
1999
2000
2001
2002
2003

VIII. Conclusions

This report analyzes LEMIS data to provide an overview of the scope, scale and dynamics of the U.S. wildlife trade. At the national level, we found that:

- Imports by number of shipments increased 41% from 1998 to 2003. Exports remained relatively flat throughout the review period. Imports were an increasing proportion of overall trade, constituting 86% of all shipments (imports and exports combined) in 2003.
- Imports, measured by number of items/pieces and by weight, constituted approximately 90% of total trade (imports and exports combined) by number and weight, and showed a general increasing trend throughout the review period.
- Exports by number of items/pieces showed a general decreasing trend since 1997, while exports by weight appear to have increased to a peak in 2000 before declining since that time.
- Canada was the United States' most significant wildlife supplier by number of shipments, followed distantly by Hong Kong, the Philippines and Italy.
- Though Mexico was only the ninth largest supplier of shipments to the United States, it was by far the biggest supplier of wildlife that was refused clearance. Russia and Nigeria were the only suppliers in the top 10 countries for shipments refused that were not also among the top 10 suppliers of shipments overall.
- Canada received more than twice as many shipments from the United States as any other country. Japan was a distant second.
- Live animal imports exceeded 235 million animals in 2003 and constituted nearly 30% of all imports reported by number, due primarily to an enormous tropical fish trade that exceeded 210 million fish. Crustaceans, amphibians, arachnids and reptiles were among other species groups imported in the millions each year.
- Live animals of U.S. origin were exported in excess of 20 million animals in 2003, constituting over 35% of all exports reported by number. This trade was dominated by red-eared slider turtles, followed by tropical fish.
- The most imported species groups reported by number of items/pieces were tropical fish and mollusks, with the former averaging in excess of 200 million annually and the latter constituting as many as nine of the top 10 species codes in a given year. European wild hog was the only non-aquatic species found in the top 10, due to imports of brushes made from its hair.
- Aquatic species also dominated the top 10 imports by species code recorded by weight. Though queen conch, frogs, stony corals and mollusks all appeared regularly, the largest and most dramatically increasing trade was in a variety of species codes relating to the import of whole dead fish, much of which is used as bait. Elk/red deer, imported

primarily as meat, was the only non-aquatic species found in the top 10 in each year of the review period.

- The top three exports by species code reported by number of items/pieces were consistent throughout the review period and consisted of tropical fish (by far the largest export trade by number), red-eared slider turtles, and mink. White-tailed deer was the only other species code found in the top 10 in each year reviewed.
- The top 10 exports reported by weight were far more variable, involving 19 different species codes over the review period. Only two codes were present in each year—a freshwater mussel (*Megalonaias nervosa*) and American bison. However, nine of the 19 species codes represented different freshwater mussel taxa, exported primarily as shell for use in the cultured pearl industry.
- Federal regulations (50 CFR 14.4) exempt certain domesticated animals from wildlife import/export requirements, except for specimens removed from wild populations. An exempted species, European wild hog, often appeared in the top 10 commodities imported or exported each year, but most of these shipments should have been excluded from LEMIS entry.
- In an effort to measure the top species refused clearance, we compiled the top 10 species codes refused clearance annually during the review period. Sea turtles (CHEL) were the top species refused each year, though the number of refusals declined throughout the review period. Elephants (either LOXA or EL00) appeared in the top 10 in most years reviewed, while sturgeon (ACI?) or sturgeon and paddlefish (AC??) appeared in several years, showing an increasing trend. Several crocodilian-related species codes appeared throughout the review period and, when combined, constituted a significant number of refusals each year. Mollusks (MOLL) and stony corals (SC00) were found in the top 10 in most years reviewed, with the former showing an increasing trend.

At the port level, we concluded that:

- The ports of New York, Los Angeles, and Miami processed over half (54%) of all wildlife imports during the period 1998-2003.
- Yearly volume of wildlife imports increased dramatically over the review period at several ports – most notably, the designated ports of New York, Los Angeles, Anchorage, Newark,Boston and Atlanta, and the northern border ports of Blaine, Pembina, and Portal.
- Few ports experienced significant increases in wildlife exports. Export volumes actually declined at a number of locations.

Appendix A: Relevant LEMIS Codes

Purpose Codes

Code	Description
*	Unknown
B	Breeding in captivity or artificial propagation
E	Educational
G	Botanic gardens
H	Hunting trophies
M	Biomedical research
P	Personal
Q	Circuses/traveling exhibitions
S	Scientific
T	Commercial
Y	Reintroduction/introduction into the wild
Z	Zoos

Transportation Codes

Code	Description
*	Unknown
A	Air cargo
B	Border crossing on foot
M	Mail
O	Ocean cargo
P	Personal baggage
R	Rail
T	Truck (commercial)
V	Personal vehicle

Wildlife Description Codes

Code	Description
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 calipees or calipashes)
CAP	Carapaces (raw or unworked shells)
CAR	Carvings (other than bone, horn or ivory)
CLA	Claws
CLO	Cloth
COR	Coral (raw or unworked)
CPR	Coral products
CUL	Cultures of artificially propagated plants
CUT	Cuttings (plant cuttings or divisions)
DEA	Dead specimens (died during shipment)
DPL	Dried plants
EAR	Ears (usually elephant)
EGG	Eggs (dead or blown eggs, including caviar)
EGL	Eggs (live)
EXT	Extracts (usually plant)
FEA	Feathers
FLO	Flowers
FPT	Flower pots (made of tree fern fiber)
LEG	Frog legs
FRU	Fruit
FOO	Feet
GAL	Galls (bile)
GAB	Gall bladders
GAR	Garments (not including shoe or trim)
GRS	Graft rootstocks
HAI	Hair
HAP	Hair products (such as paint brushes, etc.)
HOC	Horn carving (horn or antler carvings or products)
HOP	Horn pieces (pieces of horn, not manufactured)
HOR	Horns (substantially whole horns or antlers)
IJW	Ivory jewelry
IVC	Ivory carvings
IVP	Ivory pieces (not manufactured, includes scraps)
JWL	Jewelry (other than ivory jewelry)
KEY	Ivory piano keys
LPS	Leather products (small manufactured)
LPL	Leather products (large manufactured)

LIV	Live specimens (live animals or plants)
LVS	Leaves
MEA	Meat
MED	Medicinals
MUS	Musk
OIL	Oil
PIV	Pianos with ivory keys
PLA	Plates of fur skins
ROO	Roots, dead (roots, usually ginseng)
RUG	Rugs (rugs if made from one skin)
SAL	Saw logs (substantially whole tree trunks)
SAW	Sawn wood (unworked pieces)
SCA	Scales of turtles, other reptiles, fish, pangolins
SDL	Seedlings
SEE	Seeds
SHE	Shells (raw or unworked shells)
SHO	Shoes (shoes or boots)
SID	Sides (skin sides or flanks, not tinga frames)
SKE	Skeletons (substantially whole skeletons)
SKI	Skins (sub. whole skins, including tinga frames)
SKP	Skin pieces (including scraps, raw or tanned)
SKU	Skulls
SOU	Soup
SPE	Specimens (scientific or biological)
SPR	Shell products made from mollusc or turtle shell
STE	Stems (plant stems)
TAI	Tails
TIM	Timber (raw timber except saw-logs or sawn wood)
TRI	Trim (shoe trim, garment trim, or decorative trim)
TRO	Trophies (all trophy parts of one animal)
TUS	Tusks (substantially whole tusks, worked or not)
UNS	Unspecified
VEN	Veneers
WAX	Wax (including ambergris)
WPR	Wood products (including furniture, etc.)
***	Unknown
TEE	Teeth (tusks are recorded as "TUS")

Appendix B: Common Names, Scientific Names and LEMIS Species Codes

Common Name	Scientific Name	Species Code
Abalone	*Haliotis spp.*	HAT?
Alligator, American	*Alligator mississippiensis*	ALLM
Amazon, Hispaniola	*Amazona ventralis*	AVEN
Axolotl	*Ambystoma mexicanum*	AMBM
Bear, American black	*Ursus americanus*	BLBE
Bear, Kodiak	*Ursus arctos middendorffi*	URAM
Beaver	*Castor canadensis*	BEAV
Bison	*Bison bison*	BIBI
Bobcat	*Lynx rufus*	LUNR
Bobwhite	*Colinus spp.*	CLN?
Bullfrog	*Rana catesbeiana*	RACA
Bullfrog	*Rana macrodon*	RAMA
Bullfrog, Indian	*Hoplobatrachus tigerinus*	RATI
Butterflies, non-CITES	Lepidoptera	BUTT
Caiman, common	*Caiman crocodylus*	CAC?
Caribou	*Rangifer tarandus*	CARI
Carp	*Cyprinus carpio*	CCRP
Catfish	Siluriformes	CFSH
Chinchilla	*Chinchilla lanigera*	CHIN
Cod, Atlantic	*Gadus morhua*	GMOR
Conch, queen	*Strombus gigas*	STGI
Coral, black	*Cirrhipathes anguinas*	CIRA
Coral, black	*Antipathes densa*	ADEN
Coral, red	*Corallium spp.*	CRL?
Coral, red	*Corallium rubrum*	CORU
Coral, red	*Corallium nobile*	CNOB
Coral, stony	Scleractinia	SC00
Coyote	*Canis latrans*	COYO
Crane, sandhill	*Grus canadensis*	SACR
Crocodile	*Crocodylus spp.*	CYO#, CRO#
Crocodile, Morelet's	*Crocodylus moreletti*	CRMO
Crustaceans	Crustacea	CRUS
Cuttlefish	*Sepia spp.*	SEA?
Deer, fallow	*Dama dama*	CEDA
Deer, mule	*Odocoileus hemionus*	MDER
Deer, musk	*Moschus spp.*	MOSM, MOS?
Deer, red	*Cervus elaphus*	ELKK
Deer, white-tailed	*Odocoileus virginianus*	WDER
Dog, raccoon	*Nyctereutes procyonoides*	NYPR
Dove, mourning	*Zenaida macroura*	MODO
Duck/goose	Anatidae	AN00, AT00, AN$$

Eel	*Anguilla rostrata*	ANGR
Elephant, African	*Loxodonta africana*	LOXA
Elephants	Elephantidae	EL00
Elk	*Cervus elaphus*	ELKK
Fish, non-CITES	Pisces	NONF, FSCT
Fish, rough		ROFS
Fish, shiner	*Notropis spp.*	NOTT
Fish, tropical		TROP
Fisher	*Martes pennanti*	FISH
Fox, blue	*Alopex lagopus*	BFOX
Fox, grey	*Urocyon cinereoargenteus*	GFOX
Fox, red	*Vulpes vulpes*	RFOX
Frog, Forrer's grass	*Rana forreri*	RAFO
Goldfish	*Carassius auratus*	CRSA
Goose	*Anser spp.*	GOO?
Goose, Canada	*Branta canadensis*	CAGO
Hare	*Lepus spp.*	LPS?
Hare, brown	*Lepus europaeus*	LEEU
Herring, Atlantic	*Clupea harengus*	CLHA
Hog, European wild	*Sus scrofa*	SCRO
Insect, non-CITES	Insecta	NONI
Invertebrates, live non-CITES	Invertebrata	OLIN
Invertebrates, non-CITES	Invertebrata	NONV
Kangaroo	*Macropus spp.*	MRP?
Leech, medicinal	*Hirudo medicinalis*	HIME
Lizard, monitor	*Varanus spp.*	VAR?
Lynx	*Lynx canadensis*	LYNC, LCAN
Macaque, crab-eating	*Macaca fascicularis*	MFAS
Macaque, rhesus	*Macaca mulatta*	MMUL
Mallard	*Anas platyrhyncos*	MALL
Marten	*Martes spp.*	MRT?
Marten, pine	*Martes martes*	PMAR
Mink	*Mustela vison*	MINK
Mollusks	Mollusca	MOLL
Monkey, grivet	*Chlorocebus aethiops*	CAET
Moose	*Alces alces*	MOOS
Mosquito	*Anopheles spp.*	MOSQ
Musk ox	*Ovibos moschatus*	OVMO
Muskrat	*Ondatra zibethica*	MUSK
Mussel, washboard	*Megalonaias gigantea*	MEGG
Nutria	*Myocastor coypus*	NUTR
Ostrich	*Struthio camelus*	STCA
Paddlefish	*Polyodon spathula*	POSP
Partridge	*Perdix spp.*	PEX?
Partridge, grey	*Perdix perdix*	PPER
Peafowl	*Pavo spp.*	PAV?
Peafowl, common	*Pavo cristatus*	PACR

Peafowl, green	*Pavo muticus*	PAMU
Pheasant	Phasianidae	PD00, PHS#
Pigeon, wood	*Columba palumbus*	COLP
Python	*Python spp.*	PYT?
Python, ball	*Python regius*	PYTB
Python, reticulated	*Python reticulatus*	PYTR
Quail, common	*Coturnix spp.*	COT?
Quail, common	*Coturnix coturnix*	COTC
Quail, Japanese	*Coturnix japonica*	COJA
Rabbit, snowshoe	*Lepus americanus*	LEAM
Raccoon	*Procyon lotor*	RACC
Rockfish	*Sebastes spp.*	SEB?
Sable	*Martes zibellina*	SABL
Salmon, Atlantic	*Salmo salar*	SALS, ASLM
Salmon, Pacific	*Oncorhynchus spp.*	PSLM
Sambar	*Cervus unicolor*	CEUN
Sambar, Sunda	*Cervus timorensis*	CETI
Seal	*Phoca spp.*	PHO?
Seal, ringed	*Phoca hispida*	PHIS
Shad, American	*Alosa sapidissima*	ALSD
Shrimp	*Penaeus spp.*	PNU?
Skua, South Pole	*Catharcta maccormicki*	SOSK
Snail	*Helix lucorum*	HLUC
Snail	*Helix spp.*	HLX?
Snail, giant African	*Achetina spp.*	GISN
Snail, giant African	*Achetina fulica*	ACHF
Arachnid, non-CITES	Arachnida	NONJ
Squid	*Loligo vulgaris*	LOVU
Squid	*Loligo spp.*	LOL?
Squirrel, fox	*Sciurus niger*	SCNI
Squirrel, gray	*Sciurus carolinensis*	SCCA
Squirrel, tree	*Sciurus spp.*	SCI?
Starfish	Asteroidea	AS00
Sturgeon	*Acipenser spp.*	ACI?
Sturgeon and paddlefish	Acipenseriformes	AC??
Sturgeon, Beluga	*Huso huso*	HUSH
Sturgeon, kaluga	*Huso dauricus*	HUDA
Sturgeon, lake	*Acipenser fulvescens*	ACIF
Tiger	*Panthera tigris*	PANT
Tilapia	*Tilapia spp.*	TLP?
Trout, cutthroat	*Oncorhynchus clarki*	ONCC
Trout, rainbow	*Salmo gairdneri*	SAGA
Turtle, common snapping	*Chelydra serpentina*	CHSE
Turtle, cooter	*Pseudemys spp.*	PSM?
Turtle, Florida softshell	*Apalone ferox*	APFE
Turtle, Green	*Chelonia mydas*	CHEM
Turtle, hawksbill	*Eretmochelys imbricata*	EREI

Turtle, redbelly	*Pseudemys spp.*	PSM?
Turtle, red-eared slider	*Trachemys scripta elegans*	TSSE, STUR
Turtle, sea	Cheloniidae	CHEL
Turtle, slider	*Trachemys scripta*	TSCR
Turtle, smooth softshell	*Apalone mutica*	APMU
Turtle, softshell	*Apalone spp.*	APL?
Turtle, spiny softshell	*Apalone spinifera*	APSP
Weasel	*Mustela spp.*	MUL?
Whale, beluga	*Delphinapterus leucas*	DELE
Whale, bowhead	*Balaena mysticetus*	BAMY
Wolf, gray	*Canis lupus*	EGRW, CANL, WOLF, WGRW, CLUP