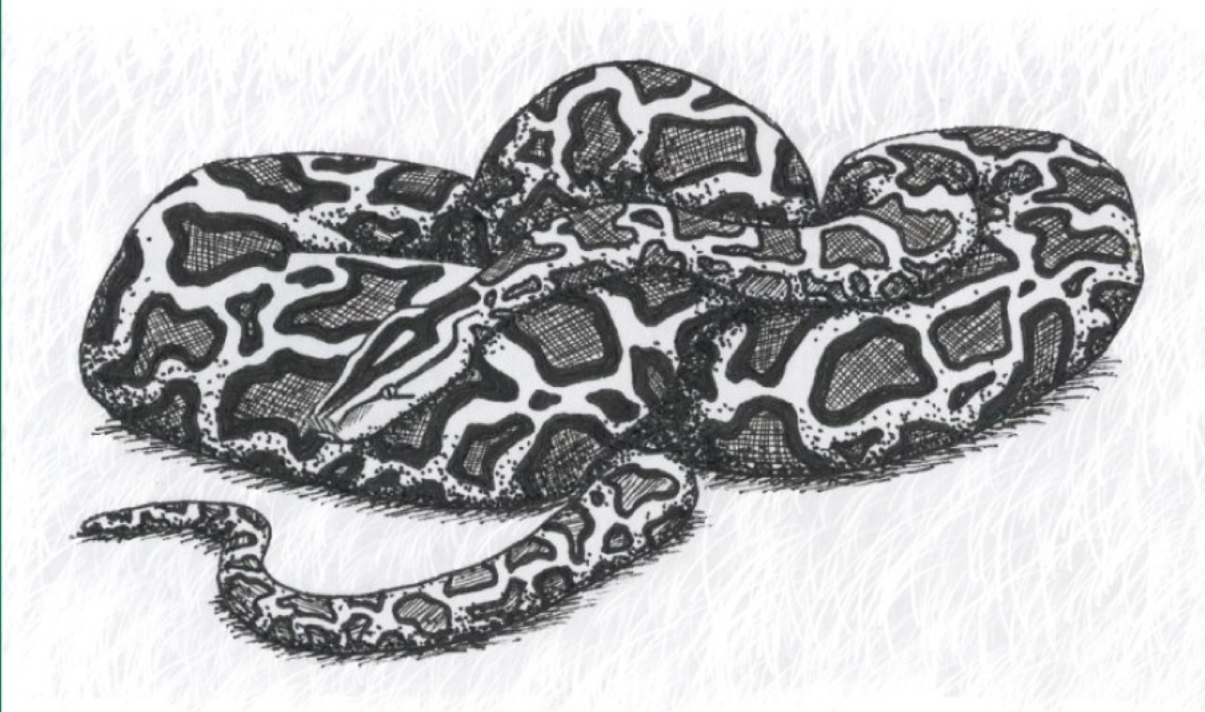


Cooperative Prevention of Invasive Wildlife Introduction in Florida



TECHNICAL REPORT

**Cooperative Prevention of
Invasive Wildlife
Introduction in Florida**

Technical Report

Environmental Law Institute
March 2008

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ABBREVIATIONS

AAM – American Association of Museums
AICC – Florida Aquaculture Interagency Coordinating Council
ANS – Aquatic Nuisance Species
ANSTF – Aquatic Nuisance Species Task Force
APHIS – Animal and Plant Health Inspection Service (USDA)
AZA – American Zoo and Aquarium Association
CBP – United States Bureau of Customs and Border Protection
CDC – United States Centers for Disease Control and Prevention (HHS)
DACS – Florida Department of Agriculture and Consumer Services
DHS – United States Department of Homeland Security
DOD – United States Department of Defense
DOI – United States Department of the Interior
ESCS – Florida Exotic Species Coordination Section (of FWC)
FIATT – Florida Invasive Animal Task Team (South Florida Ecosystem Working Group)
FIST – Florida Interdiction and Smuggling Team (of APHIS/DACS)
FWC – Florida Fish and Wildlife Conservation Commission
FWC-DFF - Florida FWC-Division of Freshwater Fisheries
FWS – United States Fish and Wildlife Service (Department of Interior)
HHS – United States Department of Health and Human Services
ISWG – Florida Invasive Species Working Group
NISC – National Invasive Species Council
SFERTF – South Florida Ecosystem Restoration Task Force
SFEWG – South Florida Ecosystem Restoration Working Group
SITC – Smuggling Interdiction and Trade Compliance (program of APHIS)
USDA – United States Department of Agriculture

STATUTES*

ADCA – Animal Damage Control Act
AHPA – Animal Health Protection Act of 2002
ASPEA – Alien Species Prevention Enforcement Act of 1992
BTS Act – Brown Tree Snake Control and Eradication Act of 2004
CITES – Convention on International Trade in Endangered Species
ESA – Endangered Species Act
FAPA – Florida Aquaculture Policy Act
HSA – Homeland Security Act of 2002
Lacey Act – Lacey Act of 1900, as amended
MBTA – Migratory Bird Treaty Act
NANCPA – Nonindigenous Aquatic Nuisance Control and Prevention Act of 1990
PHSA – Public Health Services Act
WBCA – Wild Bird Conservation Act of 1992
WRDA – Water Resources Development Act of 1996

** all statutes federal unless otherwise specified*

Executive Summary

Florida's unique ecosystems are cherished for their exceptional diversity, recreational opportunities, and economic value. Endemic species such as the American Alligator are widely valued not only for their commercial importance, but also their historical and cultural significance. Nonetheless, the state's biological resources have been degraded over past decades as a result of myriad factors, including the human-mediated establishment and spread of invasive wildlife species. Wildlife species such as the Burmese pythons, feral hogs and purple swamp hens have escaped or been released into the wild, where they are now established in the Everglades and other sensitive ecosystems. These species may pose significant threats to the environment, economy, and public health.¹

Invasive wildlife is introduced into Florida through a variety of anthropogenic pathways, including but not limited to shipping, aquaculture, and the pet trade. South Florida in particular is subject to importation pressure because Miami is a designated port of entry into the United States for wildlife shipments. Florida's thriving pet and aquaculture industries import a variety of wildlife species through Miami, some of which subsequently are released or escape from captivity. Once in the wild, wildlife species often establish sustaining populations and become invasive in Florida due to the state's hospitable climate, intensive development and associated environmental modification, and inaccessible natural areas. As a result, invasive species now make up a significant percentage of Florida's biodiversity.

The threats posed by invasive wildlife demand a policy response. While management of existing invasive species is an important component of invasive wildlife policy, prevention is the most cost-effective strategy for addressing the threats posed by invasive wildlife species. Moreover, prevention is the only strategy that can fully avoid the damage caused by introduced species – once established, invasive species are extraordinarily difficult to eradicate.

Effective prevention requires both consistent, strong legal regimes and dedicated institutions with sufficient resources to implement legal standards. Florida and the federal government use similar legal tools for invasive wildlife prevention, including listing of invasive species, restrictions on the use of listed species, and inspection and other enforcement measures to ensure that importers, producers, and sellers of non-native wildlife comply with those restrictions. Unfortunately, these provisions fail to address all known potential invasive wildlife species and are difficult to implement due to their complexity and inadequate manpower, equipment, and funding.

Florida and the federal government can increase the effectiveness of their invasive wildlife prevention provisions by coordinating both their laws and regulations and their implementation efforts. Federal and state invasive species prevention laws and regulations are implemented by multiple agencies, each of which maintains separate invasive species lists and use restrictions. Application of these inconsistent laws and regulations requires knowledge of

¹ Other types of organisms affect the environment, the economy, and public health in addition to wildlife. Agricultural invaders such as citrus canker and citrus greening have substantial defined and reported economic impacts. Similarly, the Asian tiger mosquito is a known carrier of human and animal diseases. The effects of invasive wildlife are generally more difficult to quantify, but nonetheless may be substantial.

other agencies' regulations and extensive interagency interaction and cooperation – a difficult task given persistent manpower and financial limitations. Modification of conflicting legal standards and harmonization and clarification of legal structures and roles would minimize the complexity and duplication that characterize existing legal structures. Moreover, coordinated standards and implementation processes ensure the efficient use of limited funding for prevention activities by avoiding duplication of effort, thereby ensuring that scarce enforcement resources are used efficiently.

This report focuses on federal and state coordination of importation of nonnative wildlife. Importation – whether across state or international borders – is the first line of defense against invasion, and therefore is the simplest and most effective point at which invasive wildlife can be prevented from entering Florida. Importation is also complex, requiring inspectors and importers to juggle a variety of different state and federal regulations. As a result, after introducing the relevant agencies and the relevant laws, this report describes the process for wildlife importation in Florida. This study suggests the following specific recommendations to improve interagency cooperation for the enforcement of laws intended to prevent invasive wildlife importation and introduction.

1. Facilitate interagency cooperation

- a. *Establish a state Invasive Species Council:* Florida created an Invasive Species Working Group (ISWG) to draft a statewide invasive species plan. The ISWG completed that task and its continuing role is unclear. A formal Invasive Species Council – created by legislation or executive order – is urgently needed to direct the implementation of the plan and provide a continuing forum for interagency cooperation at the state level.
- b. *Create a joint FWS/FWC interdiction task force:* Wildlife smuggling is an important pathway for the introduction of potential invasive wildlife and is a potential area of cooperation between federal and state agencies. Drawing on the experience of FIST, a plant interdiction task force composed of federal and state agriculture agencies, Florida and federal wildlife agencies should form a task force to trace and prevent wildlife smuggling all along its supply chain.
- c. *Incorporate all responsible agencies in interagency bodies:* Membership in existing interagency bodies is currently limited to agencies with a direct interest in the regulation of invasive wildlife. Expanding membership to include agencies with indirect interests in invasive wildlife prevention, such as public health and customs agencies, would formalize links between agency personnel, facilitate information sharing, and promote coordinated enforcement activities.

2. Eliminate barriers to information-sharing

- a. *Implement joint training:* Several state and federal agencies use inspectors to implement their wildlife regulations. Although inspectors often enforce or work with legal authorities implemented by other agencies, each agency trains its inspectors separately. Joint training would ensure that all inspectors are grounded in all relevant statutes and regulations and would stimulate the development of informal links between agencies and inspectors.
- b. *Develop electronic permitting databases:* Permits and notification documents are needed to import wildlife legally. While the creation of records of importation is

beneficial, the utility of the permitting and notification records would be vastly increased through the development of a searchable, public electronic permit database. The database would ease interagency enforcement and would allow the public to aid in identification of illegally imported wildlife.

- c. *Combine and maintain centralized restricted species lists:* Wildlife inspectors must know the identities and legal restrictions on importation, possession, and other uses of all species listed by a variety of federal and state agencies. This information is currently held on separate lists maintained by FWC and the ISWG. When created, the ISC should take over maintenance of the ISWG list and combine and simplify information held on the two lists for easier application by inspectors on the ground.
- d. *Update interagency body websites:* Interagency bodies such as NISC and the AICC may benefit from website updates. Information on the conduct of meetings and developments in coordinated prevention actions can ease coordination of prevention activities.

3. Enact legal reforms

- a. *Adopt preventive risk screening for wildlife importation:* State and federal agencies, including the U.S. Fish and Wildlife Service and the Florida Fish and Wildlife Conservation Commission, should adopt a clean listing approach that requires risk assessment prior to importation of nonnative species or issuance of permits for the culture or sale of nonnative species.
- b. *Strengthen state laws and regulations:* While state agencies have recently amended their regulations to address some gaps, this report identifies several areas where additional work is needed to clarify and strengthen prevention authorities. The Florida Fish and Wildlife Conservation Commission and Department of Agriculture and Consumer Services should work together to ensure that their regulations work together to prevent risky nonnative wildlife introductions.
- c. *Strengthen federal laws and policies:* Many federal prevention authorities are in need of updating and strengthening to prevent future invasions, most notably the Lacey Act listing process. Federal agencies with wildlife responsibilities, including but not limited to the Fish and Wildlife Service, should follow recommendations made in recent reviews of importation laws and regulations in order to take a forward-looking approach to prevention, particularly with regard to prescreening of new species of imported wildlife. Recent steps in this regard by the Centers for Disease Control and Prevention can serve as a starting point for this process.

4. Increase funding for invasive wildlife prevention programs

- a. *Increase the number of state wildlife inspectors:* Florida's wildlife inspectors have been stretched thin for many years. An increase in funding for state wildlife inspectors could permit a state inspector to be present at each port facility where import screening occurs. These state inspectors could work alongside their federal counterparts, providing rapid access to state personnel and enabling more effective enforcement of state nonnative species laws.
- b. *Fund implementation of statewide invasive species plan:* Florida has written an invasive species plan, but that plan requires consistent funding for its implementation. Florida should provide funding to staff an invasive species council, which should be charged with implementation of the plan, including its prevention aspects.

5. Support compliance and enforcement

- a. *Expand reptiles of concern tracking program to all suitable exotic pets:* Florida has recently begun requiring owners of several reptile species to implant them with a microchip. This implantation will allow wildlife agents to identify the owners of released pets, providing increased incentives for compliance. If successful, this program should be expanded to cover all suitable exotic pet species.
- b. *Increase state penalties for noncompliance:* Florida has recently begun a laudable effort to avoid pet releases through education and pet “amnesty days.” With this program in place, state wildlife agents should increase penalties for releases of unwanted exotic pets, including those that are not yet considered invasive.

I. Introduction: Florida's Invasive Wildlife Problem

Invasion of native ecosystems by nonnative wildlife² is a growing problem throughout the United States. Florida's invasive species³ problem has been recognized as one of the worst in the nation, due in to both biotic and abiotic factors included but not limited to the state's neotropical climate, diverse ecosystems, intensive development and associated environmental modification, major port facilities, and thriving pet and aquaculture industries.⁴ This combination of environmental and anthropogenic factors have provided especially fertile territory for invasions in recent years, such that South Florida contains more nonnative species than any other area in the United States – as of 2006, 26 percent of South Florida's total biodiversity was nonnative.⁵ The rising tide of invasion shows no sign of ebbing, so effective policies are urgently needed in Florida.

Comprehensive invasive species policies address both prevention of new invasive species introductions and control and management of nonnative species that are already established in the environment. While both of these elements are important, recent studies suggest that preventing the introduction of invasive species into the environment is the most effective and cost-efficient strategy for halting invasions by nonnative species.⁶ Strong prevention policies are therefore a key limitation on invasive species impacts over the long term. Unfortunately, Florida's prevention policies – and particularly their interaction with federal laws – have not received the attention they deserve.

Nonnative Wildlife in Florida

The declared value of the international wildlife trade exceeds \$10 billion.⁷ Live primates, birds, reptiles, and other exotic species are supplemented by an array of products ranging from bushmeat to raw coral. In addition to the declared wildlife trade, the illegal trade has been

² This report defines “wildlife” to include terrestrial vertebrates and freshwater fish. This definition excludes invertebrates and marine fish and vertebrates.

³ Not all nonnative species are invasive. This report adopts the federal definition of “invasive species,” which includes “alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health.” Exec. Order 13,112, 64 Fed. Reg. 6183 (Feb. 8, 1999). Determination that a species is harmful, however, is often difficult under this definition. As a result, this report therefore adopts a precautionary approach to invasive species identification.

⁴ Daniel Simberloff, *The Biology of Invasions*, in STRANGERS IN PARADISE: IMPACT AND MANAGEMENT OF NONINDIGENOUS SPECIES IN FLORIDA 3, 4 (Simberloff et al., eds. 1997) [hereinafter STRANGERS]; U.S. Congress, Office of Technology Assessment, *Harmful Non-Indigenous Species in the United States*, OTA-F-565 254-55 (1993) [hereinafter *OTA Report*]; Environmental Law Institute, FILLING THE GAPS: TEN STRATEGIES TO STRENGTHEN INVASIVE SPECIES MANAGEMENT IN FLORIDA 7 (2004) [hereinafter *Filling the Gaps*]; Amy Ferriter et al., *The Status of Nonindigenous Species in the South Florida Environment*, in 2006 SOUTH FLORIDA ENVIRONMENTAL REPORT VOLUME I: THE SOUTH FLORIDA ENVIRONMENT 9-2 (2006) [hereinafter 2006 SOUTH FLORIDA REPORT].

⁵ 2006 SOUTH FLORIDA REPORT at 9-2.

⁶ National Invasive Species Council, Meeting the Invasive Species Challenge: National Invasive Species Management Plan 29 (2001). See also Keller, Reuben P. et al., *Risk Assessment for Invasive Species Produces Net Bioeconomic Benefits*, 104 PROC. NAT'L ACAD. SCI. 203 (2007) (determining that implementation of risk assessments in most cases would yield economic benefits).

⁷ Robert S. Anderson, *The Lacey Act: America's Premier Weapon in th Fight Against Unlawful Wildlife Trafficking*, 16 PUB. LAND L. REV. 27 (1995).

estimated at \$5 billion per year.⁸ The United States is the single largest market for wildlife; between 1989 and 1995, the declared imports of wildlife averaged \$773 million per year.⁹ Imports have only risen since then; according to FWS, the U.S. wildlife trade increased by 62 percent, from 74,620 shipments in 1992 to 121,000 shipments in 2002, and the number of species in trade increased from 200,000 in 1992 to 352,000 in 2002, a 75 percent increase.¹⁰ Thus, while release and escape of species already in captivity is an important element of prevention, importation is the most critical and easily-restricted element of wildlife invasion.¹¹

Nonnative animals generally enter Florida through trade channels for use in the pet, aquarium, zoo, or aquaculture industries, or unintentionally as stowaways in ballast or packing material. The trade in exotic species in Florida is not insubstantial: the importation, exhibition, sale, and breeding of nonnative species generate roughly \$300 million annually on a statewide basis. Approximately 8,000 entities are authorized to possess fish and wildlife for private or commercial purposes in the state, including 300 zoological attractions and 150 exotic fish farms.¹² Despite the extent of this industry, Florida state agencies spent less than \$1 million in 2006 on invasive wildlife – including both prevention and management.¹³ Stocks of nonnative species used by these facilities are either bred in captivity in Florida or imported into the United States. The majority of imports are routed through Miami, which is one of twenty designated ports of entry for wildlife shipments.

The extensive use of wildlife in Florida and the concentrated importation of imported species results in extensive propagule pressure¹⁴ for many species, particularly in the South Florida area. While most nonnative species in trade have not become established in the wild or caused harm to human health or the environment, a variety of introduced species are widely considered to be invasive and are now established in the state.

Fish

Prevention of fish introductions is particularly important because of the spiraling control and monitoring costs that apply once an introduced fish species successfully expands its range beyond the location where it was introduced.¹⁵ Although some efforts at coordinated monitoring have occurred over the years, these efforts have nonetheless allowed reproducing populations of 35 species of nonnative freshwater fish species to become temporarily or permanently

⁸ *Id.*

⁹ *Id.*

¹⁰ *The Importation of Exotic Species and the Impact on Public Health and Safety: Hearing Before the Senate Committee on Environment and Public Works*, 108th Cong. (2003) (testimony of Marshall Jones, Deputy Director, United States Fish and Wildlife Service, Department of the Interior) [hereinafter *Jones Testimony*].

¹¹ See generally *Defenders of Wildlife, BROKEN SCREENS: THE REGULATION OF LIVE ANIMAL IMPORTS IN THE UNITED STATES* (2007) [hereinafter *BROKEN SCREENS*].

¹² ISWG, *STATEWIDE INVASIVE SPECIES STRATEGIC PLAN FOR FLORIDA* (2003); DACS pers. comm.

¹³ ISWG, *DRAFT 2006 ANNUAL REPORT OF THE STATEWIDE INVASIVE SPECIES WORKING GROUP 1* (2007).

¹⁴ “Propagule pressure is a composite measure of the number of individuals released into an ecosystem to which they are not native. It incorporates both number of discrete release events (propagule number) and the absolute number of individuals involved in any one introduction event (propagule size).” Jamie K. Reaser et al., *Saving Camels from Straws: How Propagule Pressure-Based Prevention Policies Can Reduce the Risk of Biological Invasion*, *BIOL. INVASIONS* doi 10.1007/s10530-007-9186-x (2007) (citation omitted).

¹⁵ Walter R. Courtenay, Jr., *Nonindigenous Fishes*, in *STRANGERS* 109, 117 (1997).

established in the state in the last 50 years.¹⁶ These freshwater fish populations have originated from escapes from aquaculture facilities, intentional releases from private aquaria, and intentional introduction by the Florida Fish and Wildlife Conservation Commission (FWC) for sport fishing purposes.¹⁷

The aquaculture industry is an important invasion pathway for invasive freshwater fish species in Florida. Fish species may escape from aquaculture facilities in several ways, including through effluent pipes, flooding, intentional pumping of ponds, and piscivorous bird predation.¹⁸ The prevalence of aquaculture escapes in the state is not a particular surprise, as the industry is extensive and geographically dispersed, and most fish cultured in aquaculture facilities are nonnative. In addition to producing approximately eighty percent of aquarium fish sold in North America, Florida's fish farms culture fish for bait and food uses.¹⁹ Nonetheless, despite the fact that aquaculture facilities are subject to inspection and regulation, "culture of nonindigenous species almost invariably results in escapes into open waters."²⁰ This general statement has held true in Florida, where well-known and notorious invaders such as the walking catfish (*Clarias batrachus*) were introduced via aquaculture facilities.²¹

Herpetofauna

Amphibian and reptile (together, herpetofauna) invasions are a high-profile problem in Florida due to the state's battle against the Burmese python (*Python molurus bivittatus*), which is established in the Everglades and has consumed native American Alligators (*Alligator*

¹⁶ Courtenay, *supra* note 15, at 110-13; Jeffrey E. Hill, *Regulations Pertaining to Nonnative Fish in Florida Aquaculture*, University of Florida Fisheries and Aquatic Sciences Dep't Doc. FA-121 (2006), available at <http://edis.ifas.ufl.edu/FA-121>. In comparison, Florida contains only 119 native fish species. Courtenay, *supra*, at 109. The current number may be higher than that cited by Courtenay; the 2007 South Florida Report identifies 57 nonindigenous fish species in South Florida. Ferriter et al., *The Status of Nonindigenous Species in the South Florida Environment, in 2007 SOUTH FLORIDA ENVIRONMENTAL REPORT 9-11 – 9-12* (2007) [hereinafter 2007 SOUTH FLORIDA REPORT].

¹⁷ Courtenay, *supra* note 15, at 120. According to Courtenay, species introduced by FWC's predecessor agency, the Game and Freshwater Fish Commission (FGFC), include the peacock cichlid (butterfly peacock, *Cichla ocellaris*), blue tilapia, and speckled pavon (peacock pavon, *Cichla temensis*). *Id.* at 118. See also FWC, About the Florida Fish and Wildlife Conservation Commission, at <http://myfwc.com/aboutus/aboutfwc.html> (last visited Mar. 29, 2007) (noting the institutional origins of FWC). FWC disputes Courtenay's assessment, and claims that it has authorized only the butterfly peacock for introduction. See FWC, Exotic Freshwater Fishes, at <http://myfwc.com/fishing/fishes/nonnative.html> (last visited Mar. 29, 2007). It acknowledges, however, that the blue tilapia was introduced to the state, but does not specify the means or authorization for that introduction. *Id.* As to the speckled pavon, FWC does not appear to recognize it as an exotic introduced species, perhaps because both *C. ocellaris* and *C. temensis* are commonly known as peacock bass and may be synonymous. See Ray J. Huang, Peacock Bass: *Cichla temensis* (Humboldt 1821) (2004), available at http://www.sbs.utexas.edu/bio3541/Projects/2004/Ray_Huang.pdf (last visited Mar. 29, 2007).

¹⁸ Courtenay, *supra* note 15, at 120.

¹⁹ *Id.* The latter uses have enabled the snakehead, swamp eel, and brown hoplo to become established in the state in recent years.

²⁰ *Id.*, citing Shelton, W.L. & R.O. Smitherman, *Exotic Fishes in Warmwater Aquaculture*, in DISTRIBUTION, BIOLOGY, AND MANAGEMENT OF EXOTIC FISHES (W.R. Courtenay, Jr. & J.R. Stauffer, Jr., eds. 1984).

²¹ *Clarias batrachus* has been nominated as one of the 100 "World's Worst" invaders by the Invasive Species Specialist Group (ISSG) of the World Conservation Union (IUCN), a multilateral body that hosts the Global Invasive Species Database (GISD). GISD, *Clarias batrachus (fish)*, at <http://www.issg.org/database/species/ecology.asp?si=62&fr=1&sts=sss>.

mississippiensis) on at least two occasions. Even in 1997, prior to the python's establishment as an invasive species, nonnative herpetofauna species were common in Florida, including at least 36 nonnative species.²² Exotic herpetofauna are generally imported accidentally through inclusion in packing material or through the plant or pet trade, although natural dispersion from other Caribbean locations also plays a role in introductions.²³ Accidental and intentional releases – particularly with respect to releases of large snakes and crocodilians by pet owners – have subsequently allowed these species to become established in sensitive areas.

Birds

Unlike fish and herpetofauna species, it is often difficult to determine whether a given bird species is nonnative because the natural mobility of many bird species increases the pace of natural alteration of ranges and confuses the determination of whether certain species are truly nonindigenous.²⁴ As a result, it is often difficult to categorize species as invasive or to pinpoint the pathway through which they were released. Nonetheless, several species are clearly nonindigenous and have recently become established in the wild through known pathways. The most recent South Florida Environmental Report lists twelve such species.²⁵

There are several known pathways for bird introduction in Florida. Florida hosts a large aviculture and exotic pet bird industry, which has resulted in releases of nonnative breeding populations of as many as sixty species of nonindigenous birds.²⁶ While some of these bird species are bred in captivity, Florida is also a major conduit for bird importation through international trade. Legal importation of birds is limited to breeders, zoos, and scientists, but illegal importation also occurs.²⁷

Established nonnative bird species have been released into Florida's environment both intentionally and unintentionally. Documented cases include release of birds by dealers to avoid quarantine restrictions, release of unwanted individuals by pet owners, and intentional stocking of game birds. While intentional release accounts for the majority of established populations, unintentional escapes have also been documented, most notably as a result of hurricane damage.²⁸ The purple swamphen (*Porphyrio porphyrio*), for example, may have escaped from confinement in the Miami zoo following hurricane Andrew in 1992, but more recent investigation suggests that it was released by aviculturists.²⁹ Since its release, the swamphen has since established a wild population in South Florida.³⁰ The species was subsequently designated

²² Brian P. Butterfield et al., *Nonindigenous Amphibians and Reptiles*, in STRANGERS 123, 123-25. Most introduced species are lizards. In fact, the number of invasive lizards in Florida now exceeds native lizard taxonomic diversity. *Id.* An up-to-date figure on established taxa would assuredly be greater than 36; the draft 2007 South Florida Environmental Report identifies 50 established herpetofauna species in south Florida alone. 2007 SOUTH FLORIDA REPORT 9-10.

²³ Butterfield et al., *supra* note 22, at 123-25.

²⁴ Frances C. James, *Nonindigenous Birds*, in STRANGERS 139, 140-43 (1997).

²⁵ 2007 SOUTH FLORIDA REPORT, at 9-11.

²⁶ James, *supra* note 24, at 143. Most of these populations are not permanently established.

²⁷ *Id.* at 155.

²⁸ *Id.*

²⁹ Bill Pranty et al., *Discovery, Origin, and Current Distribution of the Purple Swamphen (Porphyrio porphyrio) in Florida*, 28 FLORIDA FIELD NATURALIST 1, 7 (2000).

³⁰ 2007 SOUTH FLORIDA REPORT, at 9-42.

as an “invasive species of special concern” and has been subjected to a rapid response to address its rapid population expansion.³¹

Mammals

Finally, a diverse set of invasive mammal species are also considered established in Florida because of propagule pressure, climatic range, and diversity of habitats.³² Despite identification difficulties and large degrees of short-term change in wild mammal populations, twenty-six species were considered to have established stable breeding populations in the state as of 1997, representing a wide swath of mammalian diversity ranging from rodents to monkeys.³³ A more recent study of the south Florida region reported populations of 17 mammal species.³⁴ Many of these species are not harmful and may be beneficial. However, others, such as the rhesus monkey (*Macaca mulatta*), pose threats to both human health and the environment.³⁵

Florida’s nonnative mammal fauna was introduced intentionally and unintentionally through a variety of pathways. Many introductions were intentional, for game or other purposes. The Pallas’s mastiff bat (*Molossus molossus tropidorhynchus*), for example, was introduced for biological control of mosquitoes in the Florida Keys.³⁶ Several types of monkeys and other exotic game, on the other hand were introduced for the more pedestrian purpose of supporting private game parks and jungle cruises.³⁷ Other releases have been unintentional, including zoo and research facility escapes as a result of storm activity and escapes from private parks and other facilities, including greyhound training facilities.³⁸ Escapes and releases of exotic pets by owners and dealers are another likely source of introduction. Invasive mammals may also escape from agriculture, the wild hog (*Sus scrofa*) being perhaps the most successful example with a wild population estimated at 500,000 in 1997.³⁹ Finally, still other species, such as the coyote (*Canis latrans*), nine-banded armadillo (*Dasypus novemcinctus*), and cattle egret (*Bubulcus ibis*) have populated Florida as a result of natural processes, facilitated by anthropogenic corridors.⁴⁰

Federal and State Prevention Policies

Florida and the federal government have enacted and implemented a variety of importation and use restrictions on invasive wildlife. Existing federal laws for invasive species

³¹ FIATT, *Invasive Species of Special Concern (23-Aug-06)* 2 (2006), available at

http://iswgfla.org/files/FIATT_Invasive%20Animal%20Species%20of%20Special%20Concern_082306.pdf.

³² James N. Layne, *Nonindigenous Mammals*, in STRANGERS 157, 157-58 (1997).

³³ *Id.*

³⁴ 2008 SOUTH FLORIDA ENVIRONMENT REPORT, at 9-20.

³⁵ The rhesus monkey has been designated an invasive species of special concern by FIATT and is listed in the GISD database. See FIATT, *Invasive Species of Special Concern (23-Aug-06)* (2006); GISD, *Macaca mulatta* (mammal) (2007), at <http://www.issg.org/database/species/ecology.asp?si=1205&fr=1&sts=>.

³⁶ Layne, *supra* note 32, at 160. Layne reports this species as the velvety free-tailed bat, but more recent sources such as the 2007 South Florida Report classify it as the mastiff bat. See 2007 SOUTH FLORIDA REPORT, at 9-11.

³⁷ Layne, *supra* note 32, at 161-63.

³⁸ *Id.* at 164 (nine-banded armadillo, *Dasypus novemcinctus*), 166 (black-tailed jackrabbit, *Lepus californicus*), 169 (capybara, *Hydrochoerus hydrochaeris*).

³⁹ *Id.* at 175.

⁴⁰ 2006 SOUTH FLORIDA REPORT, at 9-9.

are diffuse and fragmented, providing several agencies with authority over different aspects of invasive wildlife prevention.⁴¹ Florida's state laws and regulatory structures are similarly complex. In addition, state political subdivisions have wildlife management authority in some areas. The efforts of these various federal, state, and local agencies are coordinated in part by several regional bodies focusing on Florida's environment. For example, the Florida Invasive Animal Task Team provides a forum for interested state and federal agencies to share information and develop coordinated legal implementation strategies.

Prevention policies seek to intercept invasive species before they are introduced into the environment. Importation limitations, as the first line of defense, are the most vital tool for preventing introduction.⁴² Current import restrictions, both on the state and federal level, rely on the use of lists to identify species that may not be imported. Lists come in two forms. It is possible to prohibit the importation of species other than those listed ("clean lists"). More commonly, however, importation of any organism is allowed except for listed species ("dirty lists"). These approaches may also be combined, allowing regulators to tailor levels of protection to the level of threat posed by particular species. For example, some species may be imported only if the importer has obtained a permit specifying caging requirements or other protections against escape.

Importation restrictions are often characterized as incomplete, "keep[ing] out almost nothing but the most glaring threats."⁴³ The prevalence of dirty lists is in large part responsible for the inadequacy of importation restrictions. Dirty lists require regulators to determine which species are potential invaders and to carry out rulemaking for each of them – a costly and time-intensive enterprise. Whether species are omitted from lists inadvertently, because of resource limitations, or purposefully, the omissions result in significantly different lists in each jurisdiction and agency. These inconsistent, complex legal authorities may hinder invasive species importation prevention efforts. Unfortunately, inter-jurisdictional conflict is acute in Florida due to the plethora of agencies with responsibilities for various elements of invasive wildlife prevention and management.⁴⁴

While importation provisions are a key component of invasive wildlife prevention, they are only part of a comprehensive prevention strategy. Even the most protective wildlife importation provisions inherently fail to address species that are already present in an area but which have not yet become established in the environment – for example, species that are bred and sold as pets. Additional legal tools are needed to ensure that these individuals are not introduced into the environment. To prevent the establishment of potential invaders, the state and federal governments restrict the permissible uses of listed species. Restrictions range from prohibitions on release, breeding, or sale of species to indirect regulation such as caging requirements in order to prevent escapes. Like importation regulations, use restrictions differ by

⁴¹ See *BROKEN SCREENS*, *supra* note 11, at 24 *et seq.*

⁴² See generally *id.*

⁴³ *Id.* at 4.

⁴⁴ For example, sixteen state and federal agencies, numerous local agencies, and two Indian tribes are involved in some aspect of Everglades restoration and therefore must cooperate in the prevention and management of invasive species. 2006 SOUTH FLORIDA REPORT, at 9-19. In addition, 15 separate state and federal agencies have independent jurisdiction over some aspect of invasive species management in Florida. *Id.* at 9-3.

jurisdiction and their application requires understanding of complex interagency jurisdictions and requirements.

The complex, interdependent nature of wildlife importation and use requires cooperation between federal, state, and local regulators. This report seeks to identify opportunities for improving the consistency of state and federal invasive wildlife prevention laws and regulations and for strengthening cooperation between responsible agencies to increase the practical efficacy of prevention authorities.⁴⁵

⁴⁵ The 2006 South Florida Environmental Report characterized the poor state of knowledge regarding animal invasions as daunting, quoting with approval a prior statement that “[t]he role of nonindigenous animals in South Florida natural areas is so poorly documented that it is difficult to design and mount an effective effort to control those that are harmful to native plant and animal communities.” 2006 SOUTH FLORIDA REPORT, AT 9-8, *quoting* Science Subgroup, South Florida Ecosystem Restoration: Scientific Information Needs Report to the Working Group of the South Florida Ecosystem Task Force (1996).

II. The Regulatory Framework

Both Florida and the federal government have adopted laws, regulations, and policies regulating nonnative wildlife. These prevention authorities are intended to prevent the importation, release, and escape of potential invasive wildlife species.⁴⁶ Each of these authorities is implemented by a responsible agency, which then issues regulations that spell out the precise provisions that are implemented by that agency's inspectors to prevent invasive wildlife introductions. These laws and regulations provide the backbone of invasive wildlife prevention authority.

The goals of federal and state invasive wildlife programs are identical. The federal and state governments, however, have created multiple, diverse laws and associated regulations that apply to various species and pathways. These complex laws and regulations appear dissimilar at first glance, but close examination of their provisions reveals that they utilize similar regulatory mechanisms to accomplish their goals. As a result, it is worthwhile to understand their shared mechanics before discussing the specific provisions of each individual provision.

Interaction of Federal and State Laws

Florida's laws and regulations interact with federal standards in complex ways. Federal laws independently restrict or regulate importation and release of some species and also regulate pathways. These federal laws may preempt state laws in a particular subject area. More commonly, however, states refer to and supplement federal standards to suit local conditions, in many cases imposing more stringent limits than those imposed by federal regulators. These state and federal systems operate side-by-side, as in the importation context.

In addition to providing policy guidance, federal laws and regulations also provide financial and manpower support to state and regional agencies. The regional South Florida Ecosystem Restoration Task Force (SFERTF), for example, has historically been largely funded by the federal government under the Water Resources Development Act (WRDA, as amended), and federal agency representatives participate in it and its working group. Thus, federal and state agencies interact on both regulatory and management levels.

Listing

Most states, including Florida, create lists of invasive species as part of their invasive wildlife prevention laws or regulations. Listing is a regulatory tool used to identify species that are subject to the substantive prohibitions in a given law (e.g., import, release, or escape bans). Listing of nonnative species is always based on some determination that the species is invasive – that is, that it poses a risk of harm to human health or the environment. This determination can be made either proactively, based on developing risk-based screening protocols, or retrospectively, based on demonstrated harm to human health or the environment.

⁴⁶ Other policies, such as education, data sharing, and pre-planning for invasion can also be categorized as preventing the introduction of invasive species. See ENVIRONMENTAL LAW INSTITUTE, HALTING THE INVASION: STATE TOOLS FOR INVASIVE SPECIES MANAGEMENT 8 (2002). Because this report focuses on coordination of importation policies, these indirect tools are not considered here.

Two types of listing provisions are used to identify harmful species: “clean” (or “white”) lists and “dirty” (or “black”) lists. Dirty lists are more common and apply the law’s substantive restrictions *only* to *listed* species, leaving all unlisted species free from regulation. This approach assigns to regulators the burden of determining whether a species is harmful, often resulting in lengthy listing delays during which species may be introduced and become established. In contrast, clean lists specifically identify allowed species, applying the law’s restrictions to species that *do not* appear on the list.⁴⁷ This approach generally assigns the burden of showing that a species will not pose an economic or environmental threat to the regulated community, which is best informed about the species and whose members will benefit from the use of the species. In addition to lessening regulatory burdens on overworked agencies, clean lists are advantageous because they require screening of species prior to import or release, resulting in comprehensive coverage of potentially harmful species before those species can become established.

Lists may be used by more than one agency or may refer to more than one type of management activity. For example, a state agriculture department could prohibit aquaculture of any species prohibited from intentional release by the state fisheries agency. While such cooperative approaches to listing are most common between state agencies, some state laws also adopt lists created by regional, federal, or international bodies. Finally, many states combine different types of lists from different sources to create a tiered listing system that can be applied to different categories of species based on their potential harm.⁴⁸

Use Limitations

Invasive species lists are meaningless without substantive limitations governing the importation, introduction, and escape of listed species. States tailor their lists in complex ways to achieve their goals of preventing the establishment of unwanted species while facilitating trade in species that pose lesser risks. To accomplish this balance, state authorities generally restrict how owners can use listed species. These restrictions may be tailored not only to the potential risks posed by species but also by industry and by the identity of the owner.

There are several ways to limit the permitted uses of listed species. In the most stringent cases, states prohibit any activity involving listed invasive species, regardless of the nature of the intended use. More commonly, however, restrictions limit only those uses of problematic species that are correlated with pathways of concern. While outright bans are fundamentally more inclusive than partial bans, the latter approach may also be effective, provided that the applicable law or regulation explicitly mentions all potentially problematic uses. Thus, such authorities should at a minimum restrict the (1) importation; (2) transport; (3) release or introduction; (5) possession; (7) purchase, sale, gift, or barter; (9) propagation or breeding; or (6)

⁴⁷ Some countries, notably New Zealand and Australia, have robust programs for prescreening of species or potential invasion pathways, but neither the federal government nor Florida has implemented such a system. Instead, state and federal regulations focus on the prevention of infestation by known invasive species and pathways. As a result, prescreening is not considered further in this report.

⁴⁸ See generally HALTING THE INVASION, *supra* note 46, ENVIRONMENTAL LAW INSTITUTE, MAKING A LIST: PREVENTION STRATEGIES FOR INVASIVE PLANTS IN THE GREAT LAKES STATES (2004).

any other use of listed invasive species. States vary in the categories of restrictions that are imposed on species, however, and in many cases have omitted important categories.

Omissions in the restricted uses of listed species may be intentional when tied to particular industries or owners who may pose less of a concern to regulators. For example, captive wildlife policies may seek to avoid or limit the importation of potentially invasive wildlife only in settings where release is likely, such as the pet trade. This type of limitation avoids undue interference with wildlife importation assumed to pose a lesser risk, such as for well-regulated zoos and research facilities. Similarly, escape prevention regulations may apply only to particularly troublesome pathways, such as aquaculture, requiring those facilities to comply with specific design standards or operating procedures. Omissions may be inadvertent or optimistic, however. For example, a state may prohibit importation of an invasive species in the pet trade but not propagation or sale of that species. Whether such an omission is intentional (e.g. based on an assessment of the number of individuals currently in the state) or inadvertent, it may contribute to the establishment of nonnative species in the state.

It is also important to recognize that, while most listing decisions are focused on the possibility that a species will become established in the wild, some lists are focused on other potential harms. For example, cage design standards may apply only to listed venomous reptiles under the jurisdiction of a state game agency. Lists of species subject to these design standards are based on public safety – not concern that a species may become established in the wild. Where public safety and invasiveness overlap, these regulations may unintentionally prevent the establishment of the species. On the other hand, because public safety and environmental goals are not coextensive, public safety regulations may not fully address all environmental risks posed by the species.

Compliance and Enforcement Provisions

States share similar methods for promoting compliance with the restrictions they impose on importation, release, and escape of invasive wildlife. The most common compliance provisions require permitting and inspection of facilities. Permitting may be required as a prerequisite to importation, propagation, transport, sale, purchase, or other uses of wildlife (invasive or not). Facilities seeking to use animals or plants – such as aquaculture facilities, game farms, and horticulture facilities – are often subject to inspection to ensure compliance with permit conditions. In some cases, particularly for venomous reptiles and other species dangerous to humans, non-commercial owners may also be subject to inspection.

Inspections and permits provide regulators with some information about who owns problematic animals and plants and how those organisms are housed. In addition, they promote compliance with inspection, release, and escape restrictions because failure to meet inspection standards or to acquire the proper permit can result in administrative or criminal penalties. Unfortunately, funding and other limitations on the effectiveness of permits and inspections may decrease the efficacy of these provisions in preventing invasive wildlife introduction. As a result, some states, including Florida, have begun to implement additional regulatory tools to

promote compliance. These include, for example, mandatory payments by importers to support inspections⁴⁹ and implantation of identification markers upon sale of problematic species.⁵⁰

⁴⁹ See Haw. S. 1066 (2007) (requiring \$1 payment per cargo container imported into Hawaii, with proceeds supporting inspections).

⁵⁰ See Fl. Admin. Code Ann. r. 68A-6.0072 (effective Jan. 1, 2008) (requiring the implantation of identifying microchips in listed “reptiles of concern” owned as pets).

III. Federal Authorities

A variety of federal laws impact invasive wildlife prevention either directly or indirectly. These laws are administered by several federal agencies, each of which plays a different role in preventing importation, release, or escape of invasive wildlife.⁵¹ In addition, some agencies primarily regulate wildlife, while others are primarily focused on enforcement of applicable laws. The Fish and Wildlife Service (FWS) is the primary regulatory agency for wildlife and also inspects wildlife shipments at the nation's ports of entry. The Animal and Plant Health Inspection Service (APHIS), a division of the Department of Agriculture regulates livestock and game animals, including indirect restrictions on invasive wildlife species. While it once had inspection duties similar to FWS, those responsibilities were transferred to the United States Bureau of Customs and Border Protection (CBP), a division of the Department of Homeland Security (DHS).⁵² CBP has primary enforcement duties not only as to imports regulated by APHIS, but also those limited by the Centers for Disease Control and Prevention (CDC) and Food and Drug Administration (FDA), which jointly address disease vectors. The CDC addresses importation of these species, while FDA addresses them within the country. Finally, the United States Postal Service (USPS) laws prohibit the mailing of invasive species, thereby providing enforcement leverage to restrict the wildlife trade.

In addition to the agencies that implement laws specifically affecting wildlife prevention, other federal bodies take action to address invasive wildlife prevention on Florida lands under their jurisdiction.⁵³ For example, the National Park Service has recognized that "Proposed management and control actions [for Burmese pythons] must include strategies for preventing their intentional release." As a result, the Service is engaged in an ongoing effort to address threats posed by constrictors in the Everglades, including radio tagging, development of rapid response strategies, and public education.⁵⁴ While a vital part of invasive species control, these agencies play a relatively minor role in preventing introductions into the Florida environment. As a result, this report does not specifically address them but notes that all agencies should consider how to coordinate enforcement actions and regulatory interactions on public lands.

⁵¹ See generally BROKEN SCREENS, *supra* note 11 (explaining federal importation authorities).

⁵² The HSA removed the United States Customs Service from the Treasury Department and included it in the new DHS. DHS subsequently reorganized the Customs Service, placing its inspection functions within the new CBP along with the inspection arms of other legacy agencies, including the Immigration and Naturalization Service and APHIS. The enforcement arm of the Customs Service was annexed to the new Bureau of Immigration and Customs Enforcement (ICE). ICE and CBP together comprise the DHS Border and Transportation Directorate. See Press Release, DHS, Border Reorganization Fact Sheet (Jan. 30, 2003), *available at* http://www.dhs.gov/xnews/releases/press_release_0073.shtm.

⁵³ These bodies notably include the Bureau of Land Management, the National Park Service, and the Department of Defense. See generally *Filling the Gaps*, *supra* note 4.

⁵⁴ National Park Service, EVERGLADES NATIONAL PARK/DRY TORTUGAS NATIONAL PARK: SUPERINTENDENT'S ANNUAL REPORT FISCAL YEAR 2006 43 (2007). Similarly, the Department of Defense conducts regular inspections of its cargo planes to prevent transport of brown tree snakes from Guam to Hawaii. *OTA Report*, *supra* note 4, at 195. Similar inspections on Florida-bound airplanes should be routine in order to prevent introductions of brown tree snakes into the state.

Table 1. Federal Invasive Wildlife Prevention Laws

<i>Statute</i>	<i>Implementing Agencies</i>	<i>Provisions</i>
ADCA	APHIS	Authorizes “any action” to address harm to agriculture, public health, or the environment caused by injurious wildlife
AHPA	APHIS	Restricts importation of livestock disease vector species; allows quarantine, seizure
ASPEA	USPS	Prohibits mailing species listed under the Lacey Act
BTS Act	APHIS, USPS, FWS	Requires quarantine of cargo from brown tree snake infestation areas
CITES	FWS*	Restricts or prohibits trade in listed threatened or endangered species
ESA	FWS*	Prohibits possession of listed threatened or endangered species
HSA	CBP, APHIS	Transfers APHIS inspection authorities to CBP
Lacey Act	FWS*	Prohibits importation, trade, or release of listed injurious animal species; criminalizes false labeling of wildlife in trade; allows FWS to enforce laws enacted by states, tribes, and foreign countries
MBTA	FWS, APHIS	Prohibits trade in listed migratory birds
PHSA	CDC, FDA	Restricts import and sale of listed animals and animal products
WBCA	FWS	Restricts trade in listed non-migratory, wild-captured nonnative bird species
General criminal laws	CBP, FWS	Criminalizes undeclared or falsified customs declarations
* other agencies implement provisions unrelated to wildlife		

United States Fish and Wildlife Service

The U.S. Fish and Wildlife Service (FWS), part of the Department of Interior, is responsible for implementing a variety of laws regulating wildlife. Several of these laws directly address wildlife importation, most notably the Lacey Act. Other laws are not directly targeted at invasive species but nonetheless may indirectly limit importation, possession, and sale of potentially invasive species.

FWS has direct authority over the wildlife trade under the Lacey Act,⁵⁵ which regulates wildlife importation, trade, and release.⁵⁶ Originally enacted in 1900,⁵⁷ the Lacey Act has been amended to broaden its taxonomic scope and to strengthen its enforcement provisions. FWS uses the current iteration of the Lacey Act in two distinct ways to prevent invasive wildlife infestation. First, the Act directly prohibits importation or release of listed nonnative species

⁵⁵ 18 U.S.C. § 42; 16 U.S.C. §§ 3371-78. FWS also regulates importation and movement of restricted wildlife and wildlife products the Marine Mammal Protection Act and other federal wildlife laws.

⁵⁶ The Act is implemented jointly by the Customs Service and FWS. 18 U.S.C. § 42. Note that this provision probably refers to the Customs Service, which was once under the jurisdiction of the Department of the Treasury. It has since been transferred to the Department of Homeland Security. As a result, this provision is out of date.

⁵⁷ 31 Stat. 187 (May 25, 1900).

without a permit and requires declarations of the contents of each wildlife shipment. Second, FWS uses the Act to enforce other federal, state, tribal, and foreign laws that have invasive wildlife prevention components.

The Lacey Act prohibits the importation⁵⁸ or intentional release of animals listed by FWS as injurious species.⁵⁹ Listed species must fall into a designated class of “wild” animal species, including mammals, birds, fish, crustacea, amphibians, and reptiles.⁶⁰ In addition, listed species must be “injurious” to the interests of agriculture, horticulture, forestry, wildlife, or wildlife resources.⁶¹ Unfortunately, startlingly few species groups are listed under this provision and imports of unlisted species require no pre-screening for potential harm.⁶² Recent research has further shown that listing of additional species takes an average of seven years, making enhanced protections difficult to obtain through regulatory processes.⁶³ In addition, permits are available for the importation of listed species for “zoological, educational, medical, or scientific purposes.” A recent study revealed that “significant” numbers of several listed species are imported each year under this provision.⁶⁴ These shortcomings have resulted in criticisms of the Act’s effectiveness as a direct limit on invasive wildlife importation.⁶⁵

In addition to its listing and permitting provisions, the Lacey Act regulations require all wildlife importers to be licensed.⁶⁶ Licensed importers must declare the species, country of origin, and purpose of each wildlife shipment to FWS twenty-four hours prior to import, and all shipping containers must be labeled.⁶⁷ Any falsification of the declaration or shipping label may result in criminal and civil penalties, including in some cases felony prosecution.⁶⁸

⁵⁸ “Import” is broadly defined by the Lacey Act and explicitly allows enforcement of the Act against shipments regardless of whether they clear customs. 16 U.S.C. § 3371(b). As a result, the Lacey Act can be applied against shipments even if they remain bonded. See Paul A. Ortiz, *An Overview of the U.S. Lacey Act Amendments of 1981 and a Proposal for a Model Port State Fisheries Enforcement Act 5* (2005).

⁵⁹ 18 U.S.C. § 42(a)(1). Note that the statute refers to the Department of the Treasury, rather than the Department of Homeland Security. This incorrect identification reflects the original location of the Customs Service in the federal administrative structure rather than its current location, and will presumably be rectified in the future. See also 50 C.F.R. § 16.1 *et seq.* (listing injurious species).

⁶⁰ 18 U.S.C. § 42(a). The term “wild” relates to any creatures that, whether or not raised in captivity, normally are found in a wild state. *Id.*

⁶¹ *Id.* This narrow definition does not explicitly cover invasive animals that may harm the environment without harming the traditional enumerated categories above (for example, by injuring plant resources in natural areas).

⁶² Fewer than 25 species groups (families, genera, or species) of prohibited wildlife are listed, and some of these groups – specifically, flying foxes, mongooses, brown tree snakes, and zebra mussels – have been added to the list by Congress. 18 U.S.C. § 42. Moreover, over half of listed species were present in the US prior to listing, which did not arrest their establishment or spread. Fowler, *supra* note 65, at 356-57 (providing details on listed species and listing processes). The Act’s dirty list approach likely contributes to the ineffectiveness of the Lacey Act listing process – species are only regulated after they have clearly become injurious and have thereby generated enough political momentum to spur action.

⁶³ Andrea J. Fowler et al., *Failure of the Lacey Act to Protect US Ecosystems Against Animal Invasions*, 5 FRONTIERS IN ECOL. & THE ENV’T 353 (2007).

⁶⁴ BROKEN SCREENS, *supra* note 11, at 24.

⁶⁵ See generally BROKEN SCREENS, *supra* note 11; Fowler et al., *supra* note 63.

⁶⁶ 50 C.F.R. § 14.91.

⁶⁷ 50 C.F.R. § 14.61.

⁶⁸ 16 U.S.C. § 3372-3373. See also John T. Webb, *Prosecuting Wildlife Traffickers: Important Cases, Many Tools, Good Results*, 2 VT. J. ENVTL. L. 2, 3-6 (2000) (describing penalty structure).

The 1981 Lacey Act amendments supplemented the Lacey Act’s dirty list provision by prohibiting the import, transport, or sale of fish, wildlife, and certain plants “taken, possessed, transported, or sold” in violation of any federal, tribal, state or foreign law.⁶⁹ FWS is thus empowered to enforce violations of a variety of predicate offenses affecting wildlife, although these violations must have some nexus with wildlife regulation.⁷⁰ This provision is particularly powerful because the Lacey Act amendments specifically permit states to make or enforce laws “not inconsistent” with the federal provisions.⁷¹ Thus, wildlife imported into Florida in violation of state wildlife laws prohibiting possession of that species in the state is subject to enforcement under the Lacey Act, even if the species at issue has not been declared injurious by FWS.⁷² The Lacey Act amendments radically expanded FWS enforcement authority beyond the injurious species context, and to the extent that other laws limit the use of species that may be invasive, they can prevent wildlife invasions. The impact of these laws from an invasive wildlife prevention standpoint may be limited, however, because their prohibitions are in many cases unrelated to invasiveness, and may even contravene invasiveness considerations. The purple swamp hen, for example, has been proposed for protection under the Migratory Bird Treaty Act, potentially making Florida’s control methods illegal.⁷³ Where invasiveness and conservation goals are coextensive, however, these indirect sources of authority empower FWS enforcement, particularly in the importation context.

The federal, state, tribal, and foreign laws that are potentially applicable for enforcement under the Lacey Act are too numerous to fully consider here but undoubtedly strengthen FWS enforcement authority.⁷⁴ Available data suggests that violations of the Lacey Act are commonly charged; in 1993-94, more than 700 violations of the Lacey Act were charged in U.S. federal courts – presumably the majority of which relied upon a predicate offense.⁷⁵ These violations required FWS inspectors to be aware of their Lacey Act authority and aware that a predicate offense was violated in the context of a particular wildlife shipment. As a result, inter-jurisdictional training on the requirements of common state and foreign laws is likely to be an important component of FWS inspector training.

In addition to Florida law, FWS implements several other wildlife laws that directly affect importation of wildlife, notably the Endangered Species Act⁷⁶ (ESA), Wild Bird Conservation Act of 1992⁷⁷ (WBCA), and Migratory Bird Treaty Act⁷⁸ (MBTA).⁷⁹ Although

⁶⁹ 16 U.S.C. § 3372(a).

⁷⁰ Anderson, *supra* note 7.

⁷¹ 16 U.S.C. § 3378.

⁷² See Webb, *supra* note 68, at 2 (describing other laws as the predicate offense or “underlying law” in the prosecutorial context).

⁷³ 71 Fed. Reg. 50193 (Aug. 24, 2006).

⁷⁴ Webb, *supra* note 68, at 5 (citing cases where the Lacey Act was applied based on violations of foreign laws of general applicability); Ortiz, *supra* note 58, at 3.

⁷⁵ Anderson, *supra* note 7. This number presumably excludes charges that were dropped or avoided via plea bargain and violations that were satisfied through administrative penalties.

⁷⁶ 16 U.S.C. § 1531 *et seq.*

⁷⁷ 16 U.S.C. § 4901 *et seq.*

⁷⁸ 16 U.S.C. § 703-712.

⁷⁹ See Webb, *supra* note 68. Other laws including trade-restrictive provisions include the African Elephant Conservation Act, the Antarctic Conservation Act, the Bald and Golden Eagle Protection Act, the Marine Mammal Protection Act, and the Rhinoceros and Tiger Conservation Act. *Jones Testimony*, *supra* note 10.

these authorities do influence importation (and often possession and sale, which are also clearly relevant to prevention), they – like other predicate offenses under the Lacey Act – are not targeted at invasive species, but rather aid in prevention tangentially and unintentionally.

The ESA prohibits the “take” of listed threatened or endangered species,⁸⁰ a prohibition that precludes the importation or use of those species. Importation is also explicitly addressed by the ESA⁸¹ as part of the United States enforcement of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). CITES restricts the trade in listed threatened and endangered animal species but requires independent implementation and enforcement by each signatory party.⁸² In addition to the ESA, CITES is implemented through the WBCA, which prohibits the importation of CITES-listed wild bird species unless FWS has determined that trade in them is not detrimental to the species.⁸³ This does not affect FWS’s authority to restrict importation or release of injurious bird species under the Lacey Act.⁸⁴ Finally, the MBTA prohibits the importation, possession, or trade in listed migratory bird species without a permit, which is only available for specified non-commercial purposes.⁸⁵

FWS implements the Lacey Act and its other laws through its Division of Law Enforcement, which operates wildlife inspection offices to inspect wildlife shipments originating in foreign countries. Wildlife inspectors are stationed primarily at designated ports or entry in order to minimize the cost of the inspection process and to consolidate limited inspection capacity.⁸⁶ Miami, the sole designated port of entry in Florida, is the country’s second largest port of entry for live wildlife shipments, totaling approximately 10,000 shipments per year.⁸⁷ Limited wildlife importation is also permitted at specified “non-designated” ports, including Tampa; Orlando can serve as a shipping point where the shipper pays the cost of inspection at that station. Other exceptions to the designated port system are also allowed with a permit.⁸⁸

⁸⁰ FWS and the National Oceanic and Atmospheric Administration-Fisheries Department share listing authority under the ESA, but FWS has sole authority as to terrestrial wildlife. 16 U.S.C. § 1533.

⁸¹ 16 U.S.C. § 1538.

⁸² 27 U.S.T. 108; 16 U.S.C. § 1537a. CITES Appendix II protects species not threatened with extinction but in which trade must be controlled to avoid such a threat to the continued survival of the species. Although export permits for such species are required, CITES does not require import permits unless required by the importing country. *See generally CITES*, at <http://www.cites.org>.

⁸³ Trade may not be detrimental due to sustainable management in their country of origin or where trade in the species is purely based on captive breeding programs. 16 U.S.C. §§ 4904, 4905, 4910. Other exemptions include importation for scientific research, zoological breeding or display programs, cooperative breeding programs for conservation of the species in the wild, and personal pets owned by individuals returning to the United States after living abroad for more than one year. 16 U.S.C. § 4911.

⁸⁴ 16 U.S.C. § 4912.

⁸⁵ *See* 50 C.F.R. § 10.13 (listing species). Permits for possession and trade in listed species are available for falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, educational, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. 50 C.F.R. § 21.1 *et seq.*

⁸⁶ *See* FWS Southeast Region Law Enforcement, Wildlife Inspection Program, *at* <http://www.fws.gov/southeast/law/PORT/wiprogram.htm>.

⁸⁷ FWS Southeast Region Law Enforcement, Miami Port, *at* <http://www.fws.gov/southeast/law/PORT/miamiport.htm>.

⁸⁸ *Id.*

As of 2008, FWS employs 114 wildlife inspectors at 32 port facilities, as well as 191 special agents who conduct investigations into illegal imports.⁸⁹ Nine inspectors are located in Miami.⁹⁰ FWS agents seek to inspect 100 percent of declared wildlife shipments and attempt to interdict undeclared wildlife shipments in concert with CBP personnel.⁹¹ In 2007, uniformed personnel inspected 179,000 declared wildlife shipments.⁹² FWS inspectors enforce not only FWS statutes but work with CDC, FDA, APHIS, and other agencies to enforce their statutes that may prohibit wildlife shipments of certain species.⁹³

Animal and Plant Health Inspection Service

The Animal and Plant Health Inspection Service (APHIS) is a division of the United States Department of Agriculture (USDA). Although its responsibilities are primarily related to plants rather than to wildlife,⁹⁴ APHIS implements several laws that implicate invasive wildlife prevention. It also enforces those acts within the United States; while it once had importation inspection responsibilities, those duties have been transferred to the CBP.

The Animal Health Protection Act of 2002⁹⁵ (AHPA) authorizes APHIS to control pests and diseases of livestock. At first glance, the AHPA does not appear to apply to invasive wildlife because it is focused on livestock and the definition of “pests” does not encompass vertebrates.⁹⁶ Vertebrate species, however, may be vectors for livestock pests and diseases and therefore subject to regulation. The AHPA uses import restrictions, quarantines, and eradication programs to restrict the importation and use of listed species.⁹⁷

⁸⁹ *Poaching American Security: Impacts To Illegal Wildlife Trade: Hearing Before the House Committee on Natural Resources*, 110th Cong. (2008) (testimony of Benito A. Perez, Chief of Office of Law Enforcement, United States Fish and Wildlife Service, Department of the Interior) [hereinafter *Perez Testimony*].

⁹⁰ Liana Sun Wyler & Pervaze A Sheikh, *International Trade in Wildlife: Threats and U.S. Policy*, CRS Report for Congress RL34395 (2008). This CRS report reveals that current staffing levels for special agents peaked in 2002 at 238 agents – a decline of approximately 20 percent over six years. These declines are troublesome in comparison to the increasing prevalence of illegal imports. In comparison, uniformed inspectors have increased in recent years, albeit at a much slower rate than the rates of wildlife shipments. *See id.* at 25.

⁹¹ *Jones Testimony*, *supra* note 10.

⁹² *Perez Testimony*, *supra* note 89.

⁹³ *Id.*

⁹⁴ APHIS implements plant-related components of the ESA and Lacey Act, as well as the stand-alone Plant Protection Act (PPA). It is the primary invasive plant response agency in the United States.

⁹⁵ 7 U.S.C. §§ 8301 *et seq.*

⁹⁶ The term “pest” means any of the following that can directly or indirectly injure, cause damage to, or cause disease in livestock: a) a protozoan, b) a plant, c) a bacteria, d) a fungus, e) a virus or viroid, f) an infectious agent or other pathogen, g) an arthropod, h) a parasite, I) a prion, j) a vector, k) any organism similar to or allied with any of the organisms described in this paragraph. 7 U.S.C. § 8302(13).

⁹⁷ *See* 7 U.S.C. §§ 8303 – 8308. Livestock is defined as “all farm-raised animals,” including fish. 7 U.S.C. § 8302(10). The AHPA includes additional direct response authority where a state’s measures are inadequate to respond to an extraordinary health emergency. In such cases, after consulting with the state’s governor, APHIS can hold, seize, treat, apply other remedial measures to, destroy, or otherwise dispose of any animal. 7 U.S.C. § 8306(b). While limited, these powers may allow the department to prevent the importation or release of disease-carrying organisms.

APHIS has used its AHPA authority to ban all imports of a few taxa of nonnative wildlife species and has limited importation or required quarantines for others.⁹⁸ As under the Lacey Act, APHIS requires imports of certain species (regardless of whether they are native or nonnative) to pass through designated ports that are largely coextensive with those designated by FWS. Miami is a designated port, while importation in Jacksonville, St. Petersburg-Clearwater, and Tampa is possible for limited purposes. Species requiring quarantine must also pass through one of USDA’s Animal Import Centers, one of which is located in Miami.⁹⁹

Table 2. Wildlife Species Subject to Import Ban Under the AHPA

<i>Species</i>	<i>Origin of Banned Specimens</i>
Hedgehogs or tenrecs	Regions where foot-and-mouth disease exists
Brush-tail possums and hedgehogs	New Zealand
Leopard tortoises, African spurred tortoises, and Bell’s hingeback tortoises	All

In addition to importation requirements, APHIS has used its AHPA authority to require that all sellers of wild and exotic animals obtain a license and pass a facility inspection.¹⁰⁰ As a condition of licensing, facilities are subject to on-demand inspection of their records and animals to determine if any animals have escaped.¹⁰¹

Like the ESA, the AHPA applies to invasive species only tangentially. A recent study of the federal importation laws identified only seven potential animal invaders within APHIS jurisdiction under the AHPA. APHIS has listed five of these seven species.¹⁰² On the other hand, the same report identified loopholes in AHPA jurisdiction, primarily centered on its restriction to pests and diseases affecting livestock to the exclusion of pests and pathogens affecting wild animals.¹⁰³ An expansion of APHIS’s jurisdiction would increase the importance of the agency and its inspectors in preventing the import, release, and escape of invasive wildlife.

APHIS’s only prevention-specific responsibilities derive from the Brown Tree Snake Control and Eradication Act of 2004¹⁰⁴ (BTS Act), which is jointly implemented by APHIS-Wildlife Services and FWS. The BTS Act requires pre-transit quarantine of shipments

⁹⁸ See 9 C.F.R. § 93.701. Imports of hedgehogs and tenrecs not specifically banned, for example, require a permit, must enter through the inspection ports and must be inspected by APHIS veterinary services on arrival. 9 C.F.R. §§ 93.702 – 93.707. Similar restrictions apply to elephants, hippopotami, rhinoceroses, tapirs, ruminants, and pet, commercial, and other birds (quarantine required). See 9 C.F.R. §§ 93.102-93.106, 93.401, 93.802-93.805.

⁹⁹ A new quarantine facility was recently opened for the Florida area. See Miami Animal Import Center. APHIS Veterinary Services, *Construction of the Miami, FL Animal Import Center*, at <http://www.aphis.usda.gov/vs/highlights/section4/section4-6.html> (2002).

¹⁰⁰ 9 C.F.R. §§ 2.1, 2.3.

¹⁰¹ 9 C.F.R. §§ 2.126, 2.128.

¹⁰² BROKEN SCREENS, *supra* note 11, at 28.

¹⁰³ *Id.* at 24.

¹⁰⁴ P.L. 108-384, 118 Stat. 2221 (Oct. 30, 2004); 7 U.S.C. § 8501 *et seq.* The BTS Act replaced prior brown tree snake language from the Animal Damage Control Act (ADCA) that was added to the statute in 1992 and removed in 2000. Food, Agriculture, Conservation, and Trade Act Amendments of 1991, Pub. L. 102-237, 105 Stat. 1847 (Dec. 13, 1991); 106-387, 114 Stat. 1549 (Oct. 28, 2000).

originating in Guam and other areas infested with brown tree snakes (*Boiga irregularis*) to prevent them from traveling to Florida or other vulnerable locations.¹⁰⁵

Box 1: The ADCA—Additional APHIS Authority?

The Animal Damage Control Act¹⁰⁶ (ADCA) authorizes the Secretary of Agriculture to “conduct a program of wildlife services with respect to injurious animal species and take *any action* the Secretary considers necessary in conducting the program.”¹⁰⁷ This broadly worded law dates back to 1931 and has been traditionally used to control predators of livestock in the West. Comprehensive amendment of the Act in 2000 clarified that consideration of wildlife threats to public health and the environment are within the scope of the ADCA.¹⁰⁸ Although the ADCA does not define the term “injurious animal,” APHIS has to date applied the ADCA only to vertebrates.¹⁰⁹ The ADCA amendments give APHIS a broad mandate for control of invasive animal species on both public and private lands. As currently organized, however, APHIS-Wildlife Services does not issue regulations, and its actions have to date been limited to authorization of control programs for injurious species – not for prevention.¹¹⁰

As originally written, the AHPA empowered APHIS to conduct warrantless searches of people and vehicles entering the United States in order to verify that no restricted species enter the country.¹¹¹ In the Homeland Security Act of 2002¹¹² (HSA), however, Congress assigned this inspection authority to the CBP, and FWS is responsible for inspecting all declared wildlife shipments.¹¹³ As a result, APHIS inspectors no longer carry out border inspections under the AHPA but retain responsibility for quarantine, regulation, and inspection outside of the border context. As a result, APHIS inspectors remain authorized to inspect vehicles, persons, and facilities within the United States and to seize, destroy, or quarantine animals that violate the

¹⁰⁵ 7 U.S.C. § 8504. *B. irregularis* is a likely candidate for invasion in South Florida. Butterfield et al., *supra* note 22, at 137.

¹⁰⁶ 7 U.S.C. §§ 426-426c.

¹⁰⁷ 7 U.S.C. § 426 (emphasis added).

¹⁰⁸ See Pub. L. 106-387 (Oct. 28, 2000). Prior to amendment, the Act read: “The Secretary of Agriculture is authorized ... to promulgate the best methods of eradication, suppression, or bringing under control ... animals injurious to agriculture, horticulture, forestry, animal husbandry, wild game animals, fur-bearing animals, and birds, and for the protection of stock and other domestic animals” The amendments significantly shortened and broadened the scope of the law.

¹⁰⁹ Phone conversation with Bill Wallace, Associate Deputy Administrator, Policy & Program Development, APHIS (April 30, 2004).

¹¹⁰ For example, APHIS Wildlife Services has used its ADCA authority to control damage to the environment caused by feral pigs in Florida, provide blacktail iguana and Nile monitor control information to municipalities, and co-manage the Gambian pouch rat trapping program with FWC. Its response program is cooperative and has included assistance to several federal and state agencies and regional and municipal organizations. See *Making a List*, *supra* note 48; USDA-APHIS Florida State Wildlife Services Report, *available at* <http://www.aphis.usda.gov/ws/pdf/florida.pdf>. See also, e.g., Environmental Assessment: Reducing Wildlife Damage Through an Integrated Wildlife Damage Management Program in Palm Beach County, Florida (APHIS, 2005).

¹¹¹ 7 U.S.C. § 8307. See Nat’l Acad. of Sci., *Quarantine Stations at Ports of Entry Protecting the Public’s Health* 170-71 (Laura B. Sivitz et al. eds., 2005).

¹¹² P.L. 107-296, 116 Stat. 2135 (Nov. 25, 2002).

¹¹³ 6 U.S.C. § 231(b); see also Nat’l Acad., *supra* note 111, at 170. The HSA also moved the Customs Service from the Department of Treasury to the newly-created Department of Homeland Security.

Act.¹¹⁴ In addition, APHIS continues to operate its Smuggling Interdiction and Trade Compliance (SITC) program. SITC's mission is currently limited to interception of illegal agriculture shipment, including through a cooperative program with the Florida Department of Agriculture and Consumer Services, dubbed the Florida Interdiction and Smuggling Team (FIST).¹¹⁵ Although this program's scope does not consider invasive wildlife, it is a model for potential federal-state cooperation in the wildlife arena.

Centers for Disease Control & Prevention/Food and Drug Administration

Nonnative wildlife species may be vectors for zoonotic diseases (zoonoses), which are transmitted from animals to humans.¹¹⁶ The global wildlife trade thus poses threats to public health. As agencies within the Department of Health and Human Services (HHS), the CDC and FDA share responsibility for shielding the United States from diseases, including zoonoses. Under section 361 of the Public Health Service Act (PHSA), the secretary of HHS is authorized to issue and enforce regulations necessary to prevent the introduction, transmission, and spread of communicable diseases into the United States or among states.¹¹⁷ The regulations allow the criminalization of a wide array of activities, including importation, sale, trade, barter, transportation, distribution, capture, or release of listed species.¹¹⁸ The PHSA regulations currently apply to a variety of mammals, birds, and reptiles.¹¹⁹

Section 361 is jointly enforced by both CDC and FDA under authority delegated by the Secretary of HHS. CDC implements its delegated authority to regulate the importation into the United States of certain animals and animal products that may carry communicable diseases harmful to humans.¹²⁰ CDC authority over the importation of animals is limited to those that have been identified by rule as a risk to public health.¹²¹ Importation of listed animals must be for a permitted purpose, requires the importer to notify CDC prior to the shipment, and may require a permit issued by CDC. FDA generally regulates the use and release of disease vectors already present in the United States.¹²²

A recent outbreak of the monkeypox virus in the United States exemplifies the zoonotic disease threat. Gambian pouched rats (*Cricetomys gambianus*), an invasive species, were commonly imported from Africa for use in the exotic pet trade. In 2003, a shipment of the rats

¹¹⁴ 7 U.S.C. § 8306-07. Conveyances and persons can be inspected without a warrant, but facility inspections require a warrant. Further, inspectors must have probable cause to support inspections of conveyances or persons traveling in interstate or intrastate commerce.

¹¹⁵ See Florida Pest Exclusion Advisory Committee, FLORIDA PEST EXCLUSION ADVISORY COMMITTEE REPORT 19 (2001).

¹¹⁶ Zoonotic diseases are pathogens that can be transmitted from animals to humans.

¹¹⁷ 42 U.S.C. § 264. This goal may be accomplished through a variety of means, including but not limited to inspection, quarantine, and destruction of infected animals.

¹¹⁸ See, e.g., 42 C.F.R. § 71.2 (penalties), 42 C.F.R. § 71.56 (prohibiting importation of African rodents), 21 C.F.R. 1240.63 (prohibiting other categories of use of African rodents). The regulations provide exceptions for scientific, display, and educational uses.

¹¹⁹ See 21 C.F.R. §§ 1240.60-1240.75; 42 C.F.R. §§ 71.51-71.56.

¹²⁰ See 42 C.F.R. part 71.

¹²¹ CDC can declare species a risk to health through either formal, notice-and-comment rulemaking or by emergency order.

¹²² FDA does inspect some imports under other authorities, but does not inspect shipments of live wildlife.

was infected with monkeypox. The rats transmitted the virus to prairie dogs that were sold as pets, resulting in thirty-seven confirmed human cases of monkeypox spread across a six-state region.¹²³ CDC and the FDA responded to the outbreak by placing an embargo on the importation of all African rodents and the domestic movement of six genera of African rodents and prairie dogs.¹²⁴

While zoonotic disease outbreaks are relatively rare, the FDA and CDC response to monkeypox appears to be typical. To date, restrictions on trade in exotic species have been reactive rather than prophylactic – that is, regulations are promulgated in response to a threat to public health in order to prevent future outbreaks through known disease vectors. This strategy limits the utility of the PHSA to the exclusion of invasive wildlife species that are known disease vectors. In the wake of the monkeypox outbreak, however, the CDC is likely to adopt a more forward-looking policy. As a result, additional restrictions on other invasive wildlife species are possible.

Table 3. Wildlife Species Banned by CDC for Importation into the U.S.

<i>Category</i>	<i>Disease</i>	<i>Species</i>	<i>Authority</i>
Reptiles	Salmonella	Non-marine turtles less than 4 inches long and their eggs	42 C.F.R. § 71.52
Mammals ¹²⁵	Monkeypox	All African rodents	42 C.F.R. § 71.56
	Various	Nonhuman primates	42 C.F.R. § 71.53
	Various	Bats	42 C.F.R. § 71.54
	SARS	Civets, all members of family Viverridae	Emergency order
Birds	Highly pathogenic avian influenza	All birds from countries identified with highly pathogenic H5N1 Avian influenza in poultry	Emergency order

CDC and FDA enforce the PHSA both directly and through cooperation with partners. Like other agencies, CDC relies on CBP and FWS to help enforce its animal import bans.¹²⁶ CDC operates Quarantine Stations in twenty ports of entry, including Miami, but regulations do not restrict ports of entry for animal shipments.¹²⁷ When FWS or CBP detects a potentially problematic shipment of wildlife, it may contact CDC to determine whether the imported species is restricted by CDC regulations. If the species violates a CDC prohibition, CDC works with its federal partner agencies to have the shipment returned to its place of origin, placed in an acceptable facility, or destroyed.

¹²³ CDC, *Monkeypox: Report of Cases in the United States*, at <http://www.cdc.gov/od/oc/media/mpv/cases.htm> (2003).

¹²⁴ See Dept. of Health & Human Svcs., Control of Communicable Diseases; Restrictions on African Rodents, Prairie Dogs, and Certain Other Animals, 68 Fed. Reg. 62353 (Nov. 4, 2003).

¹²⁵ In addition to species listed, CDC also regulates the importation of dogs and cats.

¹²⁶ *Jones Testimony*, *supra* note 10.

¹²⁷ Interview with G. Gale Galland, CDC (Nov. 19, 2007). Species subject to quarantine are typically non-human primates. CDC also inspects facilities that keep non-human primates. *Id.*

FDA agents directly carry out their intrastate functions in response to disease outbreaks. FDA does not actively screen wildlife in intrastate or interstate commerce, however – instead, it responds to complaints and reports of disease outbreaks and inspects pet retail and wholesale facilities, often in cooperation with the Florida Department of Health.¹²⁸ Due to its strategy of responding to existing problems, FDA plays a relatively small role in the prevention of release or escape of species on the PHS list.¹²⁹ However, FDA and Florida Department of Health inspections triggered by disease outbreaks may reveal violations of state or federal wildlife laws. Strong coordination between public health and wildlife agencies in this respect may provide a useful force multiplier for directed invasive species regulation.

Bureau of Customs and Border Protection

The Bureau of Customs and Border Protection (CBP) lacks direct regulatory authority over invasive species but nonetheless plays a key role in enforcement of invasive wildlife importation laws and regulations. CBP is given primary responsibility for the inspection of imported cargo under myriad laws.¹³⁰ CBP is therefore the primary inspector of goods shipped into the United States and inspects cargo to ensure that it does not contain contraband and complies with labeling, tariff, and other requirements. The vast majority of CBP's authorities are not relevant to invasive wildlife prevention. Its general requirements, however, are a potent enforcement tool against smuggled wildlife shipments. In particular, title 18 of the United States Code requires accurate labeling of all imports and criminalizes violations of this requirement.¹³¹

As noted above, CBP does not carry out inspections of declared wildlife shipments, which are inspected by FWS agents. While it does not enforce the Lacey Act at the nation's borders, CBP is responsible for detecting undeclared wildlife shipments, which are illegal under both the Lacey Act and CBP's general authority. As a result, CBP plays an important role in stemming the illegal wildlife trade.

Box 2: What is "importation"?

Wildlife shipments must pass through customs inspection before CBP considers them to have been imported into the United States. CBP regulations allow shipments to be stored in and transported through the United States without passing through customs inspection. As a result, shipments can be present in the United States for extended periods before CBP considers them to have been imported.

Agencies concerned about the presence of potentially hazardous shipments define importation differently. The Lacey Act, for example, defines "import" to mean to "land on, bring into, or introduce into, any place subject to the jurisdiction of the United States, whether or not such

¹²⁸ Interview with Shari Shambaugh, FDA (Oct. 3, 2007); Raymond Lyn, FDA (Oct. 15, 2007).

¹²⁹ FDA plays a relatively important role in the inspection of turtle facilities, however, as limitation on sale of undersized turtles is primarily an FDA matter.

¹³⁰ See CBP, Summary of Laws Enforced by CBP (2005), available at http://www.cbp.gov/xp/cgov/toolbox/legal/summary_laws_enforced/.

¹³¹ 18 U.S.C. § 545 (prohibiting smuggling); 50 C.F.R. § 14.61; 19 C.F.R. § 148.11 (requiring accurate declaration of imported goods). See Webb, *supra* note 68, at 9 (reviewing customs authorities and their interaction with wildlife laws).

landing, bringing, or introduction constitutes an importation within the meaning of the customs laws of the United States.”¹³² The FDA retains similar authority. Regulatory agencies other than CBP use utilitarian definitions of import due to the risks posed by the mere presence of shipments on U.S. soil. These agencies’ expanded authority thus allows enforcement of federal wildlife laws even when shipments do not clear customs. However, “legally taken wildlife that is shipped through a state that prohibits the possession of the wildlife” does not violate the Lacey Act so long as possession of the wildlife is legal at the shipment’s destination.¹³³ Under this “transshipment exception,” a licensed Georgia wildlife dealer does not violate the Lacey Act by importing species into Georgia via Florida even if Florida law prohibits transportation of the species – so long as the ultimate possession of the species in Georgia violates neither Georgia nor federal law.

While the definition of “import” is contested primarily at the federal level, states may share the desire to intercept shipments that violate state law before they clear customs. State authority over shipments that have not cleared customs inspection – and over those that are imported for delivery to other states – is murky. Although the Lacey Act transshipment exception does not explicitly preempt state enforcement, it suggests that Florida’s ability to enforce its state laws against wildlife transshipment could be limited because such prosecution could unduly burden interstate commerce.¹³⁴

CBP does have some direct authority over wildlife importation as a result of the HSA, in which Congress transferred APHIS’ import inspection authorities (and the inspectors themselves) to CBP.¹³⁵ Although APHIS inspectors were primarily responsible for inspection of plant shipments, they also enforced the AHPA, ADCA, and other animal-related statutes.¹³⁶ As a result, CBP has direct responsibility for inspecting shipments for violations of these laws, as directed by USDA regulations.¹³⁷

¹³² 16 U.S.C. 3371(b).

¹³³ Anderson, *supra* note 7, at n.258, citing 16 U.S.C. § 3377(C).

¹³⁴ The United States Constitution may limit some state laws; for example, states cannot differ from the United States with respect to importation of wildlife into the United States. *See* BROKEN SCREENS, *supra* note 11, at 5. On the other hand, states (including Florida) can and do restrict importation and use of wildlife through interstate commerce without violating the constitution. *See, e.g. Maine v. Taylor*, 477 U.S. 131 (1986) (holding that Maine’s limitations on baitfish importation were not unconstitutional because they were supported by a legitimate local concern that could not be adequately served by other nondiscriminatory alternatives).

¹³⁵ Dep’t of Homeland Sec., Reorganization Plan 2 (2002) (“Pursuant to Sections 421(c) & (d) of the [HSA], the regulatory responsibilities and quarantine activities relating to agricultural import and entry inspection activities of . . . [APHIS] will remain with the USDA, as will the Secretary of Agriculture’s authority to issue regulations, policies, and procedures regarding the functions transferred pursuant to Sections 421(a) & (b) of the Act.”)

¹³⁶ 6 U.S.C. § 231(b). Transfer of these authorities has resulted in a decrease in the detection of illegal plant shipments, potentially as a result of a preexisting “turf war” between APHIS and CBP inspectors. Florida Senate Committee on Agriculture and Consumer Services Interim Project Report 2002-103, Review of Programs Pertaining to the Interception and Eradication of Agricultural Pests and Diseases in the State (2001). Inspection rates in Miami declined by more than twelve percent between 2002 and 2006. General Accountability Office, *Homeland Security: Management and Coordination Problems Increase the Vulnerability of U.S. Agriculture to Foreign Pests and Disease* 23 (2006). As a result, Congress may return some or all of this authority to APHIS. *See, e.g. S.887*, 110th Cong (Feinstein, 2007) (returning inspection authority to USDA).

¹³⁷ DHS, Reorganization Plan, *supra* note 135, at 2.

United States Postal Service

Congress controls the function of USPS and has used its authority to criminalize the mailing of any item defined as “nonmailable matter.”¹³⁸ In addition to classifying items such as flammable material, the criminal statute defining nonmailable materials includes all poisonous “animals, insects, and reptiles.”¹³⁹ The Alien Species Prevention and Enforcement Act of 1992¹⁴⁰ (ASPEA) supplemented this definition by specifically providing that all Lacey Act “injurious species” constitute “nonmailable matter.”¹⁴¹ As a result, whenever FWS lists a species under the Lacey Act, it simultaneously becomes illegal to mail the species, and USPS obtains the right to confiscate any shipments.¹⁴² USPS itself enforces both the general nonmailable matter statute and the ASPEA.

¹³⁸ 18 U.S.C. § 1716D; 39 U.S.C. § 3015 (defining nonmailable matter).

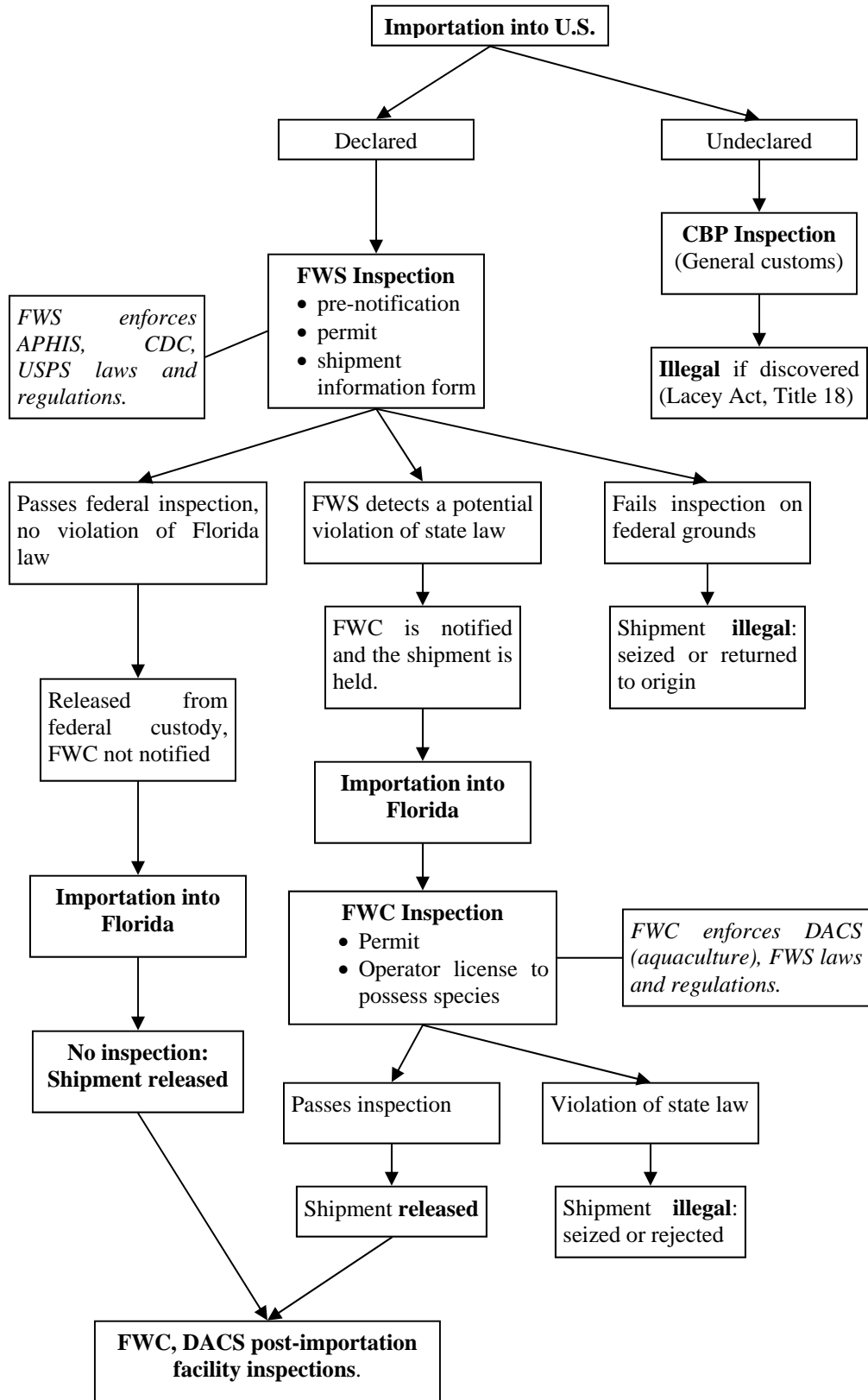
¹³⁹ 18 U.S.C § 1716 (“All kinds of poison, and all articles and compositions containing poison, and all poisonous animals, insects, reptiles, and all explosives, inflammable materials, infernal machines, and mechanical, chemical, or other devices or compositions which may ignite or explode, and all disease germs or scabs, and all other natural or artificial articles, compositions, or material which may kill or injure another, or injure the mails or other property, whether or not sealed as first-class matter, are nonmailable matter . . .”)

¹⁴⁰ Pub. L. 102-393, 106 Stat. 1776 (Oct. 6, 1992) (codified at 39 U.S.C. § 3015).

¹⁴¹ 39 U.S.C. § 3015. The BTS Act specifically defined nonmailable matter to include brown tree snakes. 7 U.S.C. § 8505.

¹⁴² 39 U.S.C. § 3001.

Figure 1: Nonnative wildlife importation process in Florida



IV. State Agencies

Two state agencies are primarily responsible for invasive wildlife prevention in Florida. The Fish and Wildlife Conservation Commission (FWC) and the Department of Agriculture and Consumer Services (DACS) have created lists of invasive species, limitations on use, and innovative compliance mechanisms that apply to particular species and industries. Several other agencies, such as the departments of transportation and health, are also active in invasive wildlife issues. Florida also has a unique system of five water management districts with management responsibilities. Both these agencies and districts are vital components of Florida's invasive wildlife program, but they are primarily engaged in the control and management of wildlife rather than its prevention. As a result, their regulatory structures are not considered in detail in this report.

Fish and Wildlife Conservation Commission

Florida's Constitution grants FWC primary responsibility for regulating and managing wildlife, freshwater life, and marine life in the state.¹⁴³ Due to this unusual source of authority, FWC's jurisdiction is broad, incorporating all fish and wild animal life on public and private lands and waters.¹⁴⁴ FWC has used this jurisdiction to adopt a comprehensive system of wildlife regulations, including specific regulations to address the threats posed by nonnative species. These specific regulations are part of the larger system of fish and wildlife regulations, and nonnative species are indirectly affected by several additional regulations.¹⁴⁵

Nonnative Species

Both Florida's wildlife statutes and FWC's regulations¹⁴⁶ specifically address nonnative wildlife. Under Florida law, "[i]t is unlawful to import for sale or use, or to release within this state, any species of the animal kingdom not indigenous to Florida" without an FWC permit.¹⁴⁷ This definition is both taxonomically broad but its breadth is overly limited to importation and intentional release; For example, possession of nonnative species bred in Florida is not prohibited by statute regardless of invasive potential. FWC has, however, adopted by rule a permit system for such activities.¹⁴⁸ Florida law also includes some specific provisions affecting

¹⁴³ See Fl. Const., Art. IV, § 9; Fl. Stat. ch. 372.021.

¹⁴⁴ Fla. Admin. Code Ann. r. 68A-1.002.

¹⁴⁵ FWC has recently revised both its nonnative wildlife regulations (effective June, 2007) and wildlife regulations (effective Jan. 2008). This report considers the revised versions of these FWC regulations.

¹⁴⁶ FWC amendment of its nonnative regulations consolidated the regulations under a single chapter, strengthened some authorities, and supplemented the lists of conditional and prohibited species. See Press Release, FWC, FWC Consolidates Rules for Nonnative Species; Additional Nonnative Species Now Prohibited (Apr. 11, 2007).

Although it is too early to know how effective these amendments will be at preventing invasions, the reduction in the complexity of FWC's regulations should, at a minimum, ease the administrative burden on FWC regulators and inspectors.

¹⁴⁷ Fl. Stat. ch. 372.265. Florida also specifically outlaws importation or release of nonnative freshwater fish. Fl. Stat. ch. 372.26.

¹⁴⁸ The statutory language also suggests that permits are available for intentional release of nonnative species. FWC does in fact permit release of some nonnative game and bait species without a permit.

use of nonnative species, including requirements for licensing of fish and bait dealers for importation of exotic fish.¹⁴⁹

FWC has issued regulations describing the conditions for obtaining a permit for nonnative wildlife. FWC regulations apply to but are not limited to freshwater fish and other “wild animal life.” While “wild animal life” is not explicitly defined, birds, mammals, and herpetofauna are certainly included in the term. As a result, the FWC regulations are sufficiently broad to address all categories of invasive wildlife considered in this report.

FWC regulations require a permit to “transport into the state, introduce, or possess [a qualifying nonnative species], for any purpose that might reasonably be expected to result in the animal’s liberation into the state.”¹⁵⁰ This use limitation is somewhat broader than that used by the statute, but its meaning is not well defined and contains a potential loophole. For example, the question of whether “introduction” includes both escape and intentional release is debatable.¹⁵¹ In addition, the FWC regulations do not require a permit for uses that are not “reasonably []expected” to result in liberation. Unfortunately, the likelihood that a species will be liberated as the result of a given use is likely to be a matter of some debate, complicating determination of what uses require a permit. For example, pet owners could claim that release of their pets is not “reasonably expected” as defined in the regulation given the number of species currently kept as pets compared to those that have been liberated. Specific regulatory guidance is needed to delineate the meaning of the “reasonable expectation” clause.

In addition to its general permit requirement, FWC has determined that certain species of nonnative wildlife pose minimal or extreme risks to Florida’s ecology.¹⁵² These species are organized into tiers based on the risks they pose to the environment. A few nonnative species are exempted from the general permit requirement, while listed “conditional” and “prohibited” species require special permits that are available only to certain owners and include conditions for facility design and operation.¹⁵³ The “reasonable expectation” clause does not apply to conditional or prohibited species permitting requirements.

Table 4: FWC nonnative wildlife restrictions

<i>Tier</i>	<i>Applies to:</i>	<i>Permit Needed for:</i>
Exempt	Listed species	No permit needed
General	All unlisted species	Transport into state, introduction, possession if “reasonable expectation of liberation”
Conditional	Listed species	Possession
Prohibited	Listed species	Import, sale, possession, or transport

¹⁴⁹ Fl Stat. ch. 372.65.

¹⁵⁰ Fl. Stat. ch. 372.265; Fla. Admin. Code Ann. r. 68-5.001. The lone exceptions to this prohibition include the fathead minnow, variable platy, coturnix quail, and ring-necked pheasant. *Id.* at § 68-5.001.

¹⁵¹ Specifically, the regulations use “introduction” and “liberation” differently, suggesting that these terms have distinct meanings and that “introduction” applies only to release. Resolution of this issue requires either judicial action or further regulatory guidance by FWC.

¹⁵² Fl. Stat. ch. 372.265; Fl. Stat. ch. 372.26.

¹⁵³ Prior to FWC’s regulatory reorganization, these regulations used a slightly different clean/restricted/prohibited classification system. The latter two categories conform to the current conditional/prohibited categories. The applicable regulations were formerly found at Fla. Admin. Code Ann. r. 68A-23.008.

Conditional species cannot be possessed without a special permit that is available only to researchers, commercial import and export businesses, public zoos and aquaria, and public educational exhibitors. Permits are not available for personal possession or exhibition in private zoos or aquaria.¹⁵⁴ FWC may inspect facilities where conditional species are held before issuing a permit to ensure that the facility has sufficient protections to prevent escapes. Aquatic¹⁵⁵ and venomous¹⁵⁶ wildlife enclosures are subject to specific design standards to guard against escape of adults, juveniles, and eggs.

Prohibited species are subject to the most stringent use and ownership limits. It is unlawful to import, sell, possess, or transport any prohibited species without a permit.¹⁵⁷ The prohibited species restrictions are thus broader than either the general or conditional species restrictions.¹⁵⁸ Prohibited species permits are available only to public wildlife exhibitors¹⁵⁹ and researchers, again the most limited type of ownership.¹⁶⁰

¹⁵⁴ Fla. Admin. Code Ann. r. 68-5.001(2).

¹⁵⁵ Outdoor fish facilities must have pond banks that are greater than or equal to 1 foot above the 100-year flood elevation, must be secure from public intrusion, and must not discharge water at any time. Indoor facilities must be secure and their outflows must either be nonexistent or screened. Turtle facilities must maintain fencing to avoid escape by burrowing and eggs must be collected daily. Fla. Admin. Code Ann. r. 68-5.001; 68A-4.005.

Aquaculture facilities permitted by FDACS are not required to obtain a FWC permit. *Id.* r. 68.5-001.

¹⁵⁶ Venomous reptiles (whether or not listed as conditional or prohibited) must be enclosed in escape-proof enclosures and nonnative species are subject to enhanced security measures.

¹⁵⁷ Fla. Admin. Code Ann. r. 68-5.001(3).

¹⁵⁸ It is unclear whether it is possible to import, transport, or sell a species without possessing it. If possession is broadly construed, some or all of these restricted uses may be redundant. This confusion occurs elsewhere as well; for example, all nonnative species are prohibited from import and possession, while the more stringent conditional species permit prohibits only possession of listed species. The confusing prohibitions on uses of nonnative species are likely artifacts of the formerly disparate FWC regulations affecting nonnative species. “Possession” is a defined term under FWC’s freshwater fish and wildlife regulations. Fla. Admin. Code Ann. r. 68A-1.004(59). Although this definition does not necessarily apply in the nonnative species context, it is notable that manual possession, physical possession, control or custody, possession in one’s clothing, attire, or equipment, and possession in or about a conveyance all constitute possession. *Id.* As a practical matter, should this broad interpretation apply in the nonnative context, uses such as transport would likely be included in possession in the conditional species context.

¹⁵⁹ Exhibitors (zoos, aquaria, etc.) must have current accreditation from the American Zoo and Aquarium Association (AZA) or the American Association of Museums (AAM). Fla. Admin. Code Ann. r. 68-5.001(3)(a). The AZA accreditation standards include limited facility design requirements. *See* AZA, Accreditation Standards and Related Policies: 2007 Edition 14 (2007). The standards do not, however, focus on escape or release in facility design accreditation. It is likely that the exceptions for AZA and AAM institutions are meant to ensure that permitted institutions have appropriate financial and governance resources to adequately ensure that the species will not present a danger to the public.

¹⁶⁰ Fla. Admin. Code Ann. r. 68-5.001(3)(b). Researchers are subject to certain conditions to avoid escape.

Box 3: Special nonnative species restrictions

A few species are subject to specific provisions for allowable use:

- **Nutria:** Under statute, possession requires a permit and secure housing that is subject to inspection. FWC can dispose of nutria as a public nuisance if a facility owner fails to remedy an identified security failure within 30 days. Intentional release is prohibited.¹⁶¹
- **Grass Carp:** Permits are required to take, possess, sell, otherwise transfer, buy, receive, transport, or stock grass carp. Facilities may be permitted only for the production of triploid grass carp, which are sterile and used for invasive aquatic plant control.¹⁶²
- **Piranhas:** No permits are available for possession of piranhas or pirambebas.¹⁶³
- **Tortoises:** Importation of leopard tortoises (*Geochelone pardalis*), African spurred tortoises (*Geochelone sulcata*), or Bell’s hingeback tortoises (*Kinixys belliana*) requires a special permit available only after a veterinarian certifies that the tortoise is parasite-free. Shipping containers must be incinerated within 24 hours and FWC may impose “other conditions” necessary to avoid transmission of Heartwater disease.¹⁶⁴
- **Nonnative venomous reptiles and reptiles of concern:** All live venomous and six listed “reptiles of concern”¹⁶⁵ must be identified by implantation of an identification microchip and/or through photographic record.¹⁶⁶ These species are also subject to enhanced permitting, caging, inspection, transportation,¹⁶⁷ and record-keeping¹⁶⁸ requirements.
- **Nonnative baitfish:** The use of a few listed species as bait is prohibited.¹⁶⁹

Captive Wildlife

As directed by Florida law, FWC has issued regulations governing captive wildlife in general. These regulations apply equally to native and nonnative species, thereby providing incidental protection against invasion.¹⁷⁰

¹⁶¹ Fl. Stat. ch. 372.98.

¹⁶² Fla. Admin. Code Ann. r. 68A-23.088.

¹⁶³ Fla. Admin. Code Ann. r. 68-5.001.

¹⁶⁴ Fla. Admin. Code Ann. r. 68-5.001.

¹⁶⁵ Fla. Admin. Code Ann. r. 68A-6.007. The reptiles of concern include Indian or Burmese python (*Python molurus*), reticulated python (*Python reticulatus*), African rock python (*Python sebae*), amethystine or scrub python (*Morelia amethystinus*), green anaconda (*Eunectes murinus*), and Nile monitor (*Varanus niloticus*). *Id.* While this list includes important species, it also excludes a number of known species of concern identified by the South Florida Ecosystem Task Force. 2006 SOUTH FLORIDA REPORT, *supra* note 4, at 9-10.

¹⁶⁶ Fla. Admin. Code Ann. r. 68A-6.0072.

¹⁶⁷ Fla. Admin. Code Ann. r. 68A-6.007.

¹⁶⁸ Fla. Admin. Code Ann. r. 68A-6.0071.

¹⁶⁹ Fla. Admin. Code Ann. r. 68A-23.007. Listed species include black bass, peacock bass, carp or goldfish (cannot be imported), panfish greater than 4 inches long, and pickerel and bream. Wild-caught individuals of these species can be used for bait, however, with the exception of goldfish.

¹⁷⁰ While there may be some question of the application of these regulations where they conflict with the specific nonnative species regulations, the statutory language specifically notes that the captive wildlife standards apply to all wildlife, “whether indigenous to Florida or not.” Fla. Stat. ch. 372.922. As a result, nonnative wildlife are subject to both the specific nonnative wildlife restrictions and the general captive wildlife regulations. In addition, it is noteworthy that the recent amendment of the FWC regulations consolidated the Commission’s existing nonnative species standards – standards that were formerly located in regulations of general applicability. As a result, conflicts between specific and general regulations should be few.

FWC regulates the possession, sale, and housing of captive wildlife.¹⁷¹ “Captive wildlife” includes “any wildlife, specifically birds, mammals, reptiles, and amphibians,” thus apparently excluding fish but including other wildlife groups.¹⁷² Captive wildlife must also be “maintained in captivity for exhibition, sale, personal use, propagation, preservation, rehabilitation, protection, or hunting purposes.”¹⁷³ The regulations thus apply only to the specified uses of wildlife, potentially excluding some potential invasion pathways. Fortunately, the list of restricted uses is broad and includes key invasion vectors such as personal use, the pet trade, and private exhibition (game farms and petting zoos).

Possession of captive wildlife requires a permit¹⁷⁴ and it is illegal to buy any wildlife from or sell wildlife to an unpermitted entity.¹⁷⁵ The conditions for obtaining a permit differ based on the threats represented by particular species. FWC has created a three-tiered classification for wildlife. Class I wildlife, the most dangerous, cannot be possessed as a pet. Class II wildlife species present a real or potential threat to human safety, but can be possessed as a personal pet with a special permit that requires the owner to display experience dealing with the species. Classes I and II are dominated by large carnivorous species that may present little threat but also include a few species similar to existing invasive species in Florida. The Komodo dragon (*Varanus komodoensis*) is a Class I species, for example, and is closely related to the invasive Nile monitor (*Varanus niloticus*) and water monitor (*Varanus salvator*).¹⁷⁶ As a result, these classifications may prevent or limit ownership of some potential invasive species. Most wildlife species are included in Class III, which is a catchall that includes all wildlife species not listed in classes I or II or otherwise excluded. Ownership of Class III wildlife requires a no-cost permit and a showing that the owner is competent to care for the species.¹⁷⁷ Class III includes most nonnative wildlife.

Captive wildlife permits require owners to maintain certain caging requirements that differ from class to class.¹⁷⁸ These requirements are designed to protect owners and the public by preventing escape of the wildlife. The caging requirements are enforced through inspection, which may be required prior to issuance of a permit.¹⁷⁹

Not all species fall under one of the three classes of wildlife. FWC has declared that “[n]o permit shall be required to possess [listed species of] wildlife for personal use, unless possession of a species is otherwise regulated by other rules of the commission.”¹⁸⁰ Listed species are largely but not entirely common pets – for example, FWC’s recently included all

¹⁷¹ FWC adopted new captive wildlife regulations in February 2007. These regulations will take effect by July 2008. Although not all listed regulations currently apply, the prospective focus of this report demands consideration of the new provisions rather than their predecessors.

¹⁷² Fla. Admin. Code Ann. r. 68A-1.004.

¹⁷³ Fla. Admin. Code Ann. r. 68A-1.004.

¹⁷⁴ Fl. Stat. ch. 372.922, Fla. Admin. Code Ann. r. 68A-6.0011. This prohibition does not apply to research facilities registered and regulated under the federal Animal Welfare Act. Fla. Admin. Code Ann. r. 68A-6.0011.

¹⁷⁵ Fla. Admin. Code Ann. r. 68A-6.0021.

¹⁷⁶ 2006 SOUTH FLORIDA REPORT, *supra* note 4, at 9-10.

¹⁷⁷ *Id.* See Fla. Admin. Code Ann. r. 68A-6.002 (listing species by class), Fla. Admin. Code Ann. r. 68A-6.0022 (clean list).

¹⁷⁸ Fla. Admin. Code Ann. r. 68A-6.0023, 68A-6.003, 68A-6.004, 68A-6.007

¹⁷⁹ Fla. Admin. Code Ann. r. 68A-6.0022(6).

¹⁸⁰ Fla. Admin. Code Ann. r. 68A-6.0022.

non-venomous, unprotected reptiles (including notable invaders such as the Burmese python) from the captive wildlife permitting exemption.¹⁸¹ The list also specifically includes the sugar glider (*Petaurus breviceps*) – a known invader that is banned in several states – and the brushtail possum (*Trichosurus vulpecula*) – which is on the list of prohibited species under the AHPA.¹⁸² While the language of this provision is susceptible to several interpretations, at a minimum it includes a savings clause that preserves the nonnative species permits required for these species.¹⁸³

A second exception from the permit requirement for captive wildlife applies to wildlife sellers. A permit is required to exhibit¹⁸⁴ or sell wildlife in Florida,¹⁸⁵ including frogs and freshwater fish.¹⁸⁶ However, FWC has lifted this requirement for sales of a few listed species.¹⁸⁷ Like the personal possession exemption, the wildlife sale exemption applies primarily to common pets, but it also includes “chameleons (*Anolis*).” Several species of genus *Anolis* are species of concern in Florida, making this exception a potential loophole for the introduction of these species, although the restriction on release of nonnative species does not appear to be affected by this exemption.¹⁸⁸ The personal possession and wildlife sale exceptions to the captive wildlife permit requirements both run counter to recent tightening of the state’s nonnative species regulations through innovative means such as mandatory microchipping of pets and increase the difficulty of preventing release or escape of potential invasive wildlife species.

Implementation

FWC’s wildlife authorities are allocated among several divisions, each with separate areas of expertise and responsibility. The exotic species coordination section (ESCS) was created in 2004 as part of a reorganization of the division of habitat and species conservation.¹⁸⁹ It is the sole department within FWC that is exclusively engaged in exotic species activities.

¹⁸¹ Fla. Admin. Code Ann. r. 68A-6.0022. Presumably, “protected” refers to the state and federal ESA and similar statutes.

¹⁸² The brushtail possum was nominated as one of the world’s 100 worst invaders by the World Conservation Union’s (IUCN) Invasive Species Specialist Group (ISSG). Global Invasive Species Database, *Trichosurus vulpecula (mammal)*, at <http://www.issg.org/database/species/ecology.asp?si=48> (2007).

¹⁸³ Alternatively, the language could suggest that a captive wildlife permit and nonnative species are *both* required for any species otherwise regulated by FWC, regardless of its inclusion on the exempted list. Such an interpretation is more sensible for categories of species such as nonvenomous herpetofauna than for specific species. Specific guidance on this issue is needed.

¹⁸⁴ Exhibitor permits are required regardless of whether the wildlife is shown for profit. Any person may own and operate a private game farm, but game farms must be licensed, are subject to inspection by FWC, and must be fenced to prevent escape. Fl. Stat. ch. 372.16.

¹⁸⁵ Fla. Admin. Code Ann. r. 68A-6.006. The permit requirement applies to dealers of exotic birds commonly kept as pets. These dealers are subject to inspection and the animals to seizure if they are held in an unsanitary or unsafe manner and the owner fails to remedy the situation within 30 days. Fl. Stat. ch. 372.921. Public zoos and exhibitions, traveling zoos, and circuses regulated under Ch. 205 are exempt from the permit requirement. *Id.* Note that Ch. 205 deals with local business taxes. Neither zoos nor circuses are regulated therein. This may be scrivener’s error.

¹⁸⁶ The permit applies to bait and to exotic or nonindigenous fish. Fl. Stat. ch. 372.65.

¹⁸⁷ Fl. Admin. Code Ann. r. 68A-6.022(3).

¹⁸⁸ See 2006 SOUTH FLORIDA REPORT, *supra* note 4, at 9-10.

¹⁸⁹ See *Filling the Gaps*, *supra* note 4 (noting that, as of 2003, Florida had no such program).

ESCS has a broad spectrum of duties, including data collection, coordination of regulatory and enforcement actions, and rule development.¹⁹⁰ To date, ESCS has successfully led the development of the department's new nonnative species regulation. Over time, ESCS promises to be the most important player in promoting efficient prevention strategies through coordinated interagency efforts on both the federal and state levels. It accomplishes this goal by creating task teams composed of members from FWC's various areas, including law enforcement.

The divisions of law enforcement and freshwater fisheries have primary authority for carrying out FWC's prevention policies. FWC law enforcement agents issue permits for importation and possession of wildlife and nonnative species and enforce those permits through inspections of commercial facilities, non-commercial locations (such as private residences), and conveyances.¹⁹¹ FWC's law enforcement agents – numbering nine wildlife inspectors and 700 law enforcement officers in 2001¹⁹² – are also deputized by FWS to enforce federal wildlife laws and inspect imports in collaboration with federal inspectors. The freshwater fisheries division carries out the required inspection of aquaculture facilities.¹⁹³

Department of Agriculture and Consumer Services

The Florida Department of Agriculture and Consumer Services (DACS) lacks general authority to regulate nonnative wildlife except where a nonnative species may carry a disease or pathogen that threatens livestock. However, the Florida Aquaculture Policy Act (FAPA) designates DACS as the lead agency for aquaculture issues, with regulatory authority over all aquaculture facilities in the state.¹⁹⁴ DACS prohibits the sale of aquaculture products by uncertified facilities and regulates facilities of all sizes. DACS also cooperates with the state Department of Environmental Protection, FWC, and the Florida Sea Grant program in carrying out its aquaculture management authority.¹⁹⁵

All commercial aquaculture facilities (including both food and ornamental species facilities) must be inspected and annually certified by DACS.¹⁹⁶ Certified facilities must comply

¹⁹⁰ Specifically, ESCS collects and manages data on exotic species, issues recommendations on prevention and control actions, coordinates with other federal and state agencies and participates in interagency task forces, develops monitoring, control, and reporting protocols, proposes rules, communicates species risks, and develops risk assessment protocols. FWC, *The Division of Habitat and Species Conservation 4* (2005) (on file with author).

¹⁹¹ FWC's division of law enforcement is authorized to inspect all wildlife facilities to ensure that they comply with its permitting and facility management regulations. FWC agents do not require a warrant to search conveyances or buildings – except private residences – for any game species, fur-bearing animal, or fish when they have reasonable and probable cause to believe that state laws or regulations are being violated. Fl. Stat. ch. 372.76; Fla. Admin. Code Ann. r. 68-5.001. The definition of “furbearer” includes nutria. Fla. Admin. Code Ann. r. 68A-6.1004. A warrant is required to search private residences where any fish or game purchased or sold unlawfully. Fla. Admin. Code Ann. r. 68A-4.006.

¹⁹² PEAC, *supra* note 115, at 47. Prior to the department's recent reorganization, it had twelve positions dedicated to inspection and exclusion of species, with an annual expense budget of approximately \$100,000 per year – a miniscule amount. Florida Senate, *supra* note 136, at 4.

¹⁹³ As of 2003, FWC-DFE staff included 11 wildlife inspectors and 1 supervisor. In 2002, the agency carried out 5159 inspections. Statewide Plan, *supra* note 12, at 32.

¹⁹⁴ Fl. Stat. ch. 597.003.

¹⁹⁵ Fl. Stat. ch. 597.003; Fl. Stat. ch. 372.0225.

¹⁹⁶ Certified facilities must include their unique Aquaculture Certificate of Registration number on all business related paper trail (invoices, receipts and bills of lading) and product packaging.

with DACS's aquaculture regulations, which consist of a series of general, species-specific, and production system-specific best management practices (BMPs).¹⁹⁷ The BMPs address a variety of environmental issues implicated by aquaculture systems, including but not limited to importation, release, and escape of species cultivated. Some BMPs – including biosecurity and escape prevention – depend on invasion risk: cultivation of nonnative species on FWC's conditional species list requires special protections against escape, and DACS does not permit cultivation of species on the FWC prohibited list.¹⁹⁸ In addition to complying with the BMPs for these species, aquaculture facilities must also comply with FWC regulations governing facility design and become subject to other FWC regulations once they cease operations.¹⁹⁹

DACS certificates list the amount and type of species that can be cultured in the facility, including restricted nonnative species. DACS, not FWC, thus issues permits to possess, transport, or sell nonnative fish species in the aquaculture context, but DACS uses FWC nonnative species lists to make its permitting decisions. In addition, while certified aquaculture facilities do not require an FWC possession permit for nonnative species, they must obtain an FWC permit to *import* a nonnative species for use in aquaculture.²⁰⁰ The agency also completed a sturgeon risk analysis in 2000 that led to sturgeon specific BMPs to prevent the introduction of native sturgeon outside their natural range or nonnative sturgeon to Florida waters.²⁰¹

DACS enforces compliance with the BMPs and FWC's facility design standards through a required annual inspection of each aquaculture facility.²⁰² Any shortcoming revealed in an inspection results in on-site guidance by the inspector followed by a written compliance order.²⁰³ The agency also publishes a bi-monthly newsletter that describes and provides updates on amendment regarding state and federal laws and regulations, including those governing nonnative wildlife. DACS also publishes technical bulletins that clarify complex regulatory issues.²⁰⁴

¹⁹⁷ See Fla. Admin. Code Ann. r. 5L-3.001 *et seq.*; DACS Division of Aquaculture, Aquaculture Best Practices Manual (2005), available at <http://www.floridaaquaculture.com/publications/BMP%20Rule-Manual112805.pdf> [hereinafter BMP Manual].

¹⁹⁸ Fla. Admin. Code Ann. r. 5L-3.003, 3.004. See also BMP Manual, *supra* note 197, at 26 *et seq.* The BMPs still refer to FWC's previous categories of nonnative species and it is not clear whether DACS will revise them to account for the change. See DACS, *FWC Changes Nonnative Species Rule*, 59 FLORIDA AQUACULTURE 3 (May 2007).

¹⁹⁹ Fla. Admin. Code Ann. r. 68-5.001. Under FWC regulations, it is illegal to permit nonnative freshwater organisms to remain in a propagating pool or pond that is no longer maintained or operated for the production of that species. For this purpose, the mere presence of a conditional or prohibited species in a pool or pond is sufficient to constitute possession of that species. *Id.*

²⁰⁰ The division of freshwater fisheries also issues permits for herbivorous fish used for weed control in the state.

²⁰¹ The agency utilized a federally developed generic nonindigenous risk analysis process to complete the sturgeon risk analysis. See DACS, PROCEEDINGS OF THE FLORIDA STURGEON CULTURE RISK ASSESSMENT WORKSHOP (2000), available at <http://www.floridaaquaculture.com/publications/sturgeon.pdf>.

²⁰² Fl. Stat. ch. 597.004. DACS can also carry out unannounced inspections. DACS' authority allows inspections of the facility in general, the species cultured, and the design, operation, and management of its production systems.

²⁰³ Fl. Stat. ch. 597.004. After three or more violations, DACS may revoke the facility's certificate and impose a fine. Fla. Admin. Code Ann. r. 5L-3.007.

²⁰⁴ Past technical bulletins have considered issues related to shellfish harvest, red tide, hurricanes, and apple snails. Past and current newsletters or technical bulletins can be accessed at: <http://www.floridaaquaculture.com/pub.htm>

V. Cooperative Programs

Federal and state agencies do not work independently to prevent invasive wildlife introduction. Cohesive operation of the regulatory regime requires agencies to communicate and work together to implement various wildlife laws. Several existing cooperative bodies facilitate this cooperation, including the National Invasive Species Council (NISC), the Florida Invasive Species Working Group (ISWG), the Florida Invasive Animal Task Team (FIATT), and the Aquaculture Interagency Coordinating Council (AICC).

National Invasive Species Council

The National Invasive Species Council (NISC) was created by executive order in 1999 to be the primary interagency body working for coordination of federal invasive species efforts.²⁰⁵ NISC is the only interagency body addressing the coordination of invasive species agencies with respect to wildlife issues at the federal level.²⁰⁶ However, NISC has no independent regulatory authority and does not implement any laws; its primary duty is to publish a national invasive species management plan every two years.²⁰⁷

NISC introduced the national management plan in 2001 and last updated it in 2005.²⁰⁸ The 2005 update highlights several prevention-related actions in which NISC has been engaged, notably including FY 2004 increases in appropriations for APHIS quarantines and increased payments from APHIS to DHS for port-of-entry screenings and testing of preventive, risk-based invasive species import screening in Hawaii and other Pacific Islands.²⁰⁹ The most recent published NISC cross-cut budget (combining and evaluating invasive species budgets for many, but not all relevant agencies) also reflects small but consistent increases in prevention funding, although it is unclear whether and to what degree these increases have been used for wildlife prevention.²¹⁰

NISC has also created several workgroups, two of which are relevant to cooperative wildlife prevention. In 2002, NISC created a prevention working group, tasking it with consideration of

²⁰⁵ Exec. Order 13,112, 64 Fed. Reg. 6183 (Feb. 8, 1999).

²⁰⁶ Other interagency efforts address specific categories of invasive species, such as noxious weeds and aquatic nuisance species. No more specific effort, however, has been created to address the specific issues affecting the management of invasive wildlife.

²⁰⁷ See NISC, *Management Plan: Meeting the Invasive Species Challenge* (2001). Specifically, the order requires NISC to “provide national leadership on invasive species; see that [] Federal efforts are coordinated and effective; promote action at local, State, tribal and ecosystem levels; identify recommendations for international cooperation; facilitate a coordinated network to document and monitor invasive species; develop a web-based information network; provide guidance on invasive species for Federal agencies to use in implementing the National Environmental Policy Act; and prepare the Plan. . . .” *Id.* at 2. The management plan is currently in revision and has been released for public comment. In practice, NISC fulfills its requirement of biannual management plan publication by releasing periodic progress reports. See Beth Baker, *National Management Plan Maps Strategy for Controlling Invasive Species*, 51 *BIOSCIENCE* 92 (2001).

²⁰⁸ NISC, *Progress Report on Meeting the Invasive Species Challenge: National Invasive Species Management Plan. FY 2004*. (2005).

²⁰⁹ *Id.* at 7-8.

²¹⁰ NISC, *Fiscal Year 2006 Interagency Invasive Species Performance-Based Crosscut Budget 3* (2006). Tellingly, the Department of Interior’s prevention budget is astonishingly small in comparison with the USDA budget. The entire budget for the Department of Interior is listed at \$3,775,000, incorporating not only FWS’s wildlife importation efforts but also Interior’s other prevention efforts.

pathways for unintentional introduction of nonnative species.²¹¹ As tasked, this workgroup has produced two reports focusing on identification and remediation of unintentional introduction pathways. Because its report do not consider intentional introductions or focus on wildlife, they are of little use for addressing or coordinating responses to legal or illegal wildlife importation.²¹² NISC has also created a leadership and coordination workgroup, which has not issued any reports. As a result, it is difficult to gauge the engagement or utility of this workgroup.

In sum, NISC has identified prevention as an important component of invasive species policy and has facilitated some concrete actions to reduce introductions. These actions, however, have primarily related to unintentional introductions rather than cooperation for implementation of legal importation or enforcement. In addition, NISC's prevention efforts have primarily been federal, while effective prevention requires state-federal cooperation.²¹³ As a result, NISC has an opportunity to increase its engagement in the coordination of wildlife prevention.

Aquatic Nuisance Species Task Force

The Aquatic Nuisance Species Task Force (ANSTF) is a task force composed of ten federal agencies and twelve ex-officio members from regional environmental groups and NGOs.²¹⁴ The task force was created by the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (NANCPA) in 1990. The ANSTF coordinates agency actions for aquatic nuisance species (ANS) and the brown tree snake through several avenues, including “[d]evelop[ment of] strategies to identify and reduce the risk of harmful aquatic species being introduced into U.S. waters.”²¹⁵ It accomplishes this in part by promoting proactive planning for aquatic invasion at the state level by providing funding to states for development and implementation of ANS management plans. Although Florida has developed an ANS plan, it has not submitted the plan for approval by the ANSTF. In addition, the ANSTF carries out three public education programs to prevent introductions of nonnative aquatic species, including “Habitatude,” which is specifically focused on discarded species from the pet trade.

Six regional ANSTF panels carry out the task force's goals in each area of the country. The regional panels are composed of state and federal agency representatives, NGOs, and universities. Florida is represented on the Gulf and South Atlantic Regional Panel through participation by FWC, DEP and DACS.²¹⁶ Periodic GSARP meetings provide an opportunity for members to communicate about invasive species issues and to work together on regional issues.

Invasive Species Working Group

The Invasive Species Working Group (ISWG) was created by executive request in 2001 as a state interagency group responsible for the collaborative development of a statewide invasive species

²¹¹ NISC Pathways Work Team, *Focus Group Conference Report and Pathways Ranking Guide 8* (2005)

²¹² *See id.* The word “wildlife” does not appear in the text of the 2005 working group report.

²¹³ *See* NISC, Progress Report on the Meeting the Invasive Species Challenge: National Invasive Species Management Plan. FY 2004 (2005).

²¹⁴ ANSTF, *ANS Task Force Members*, at <http://www.anstaskforce.gov/members.php>.

²¹⁵ ANSTF, *ANS Task Force Strategic Plan*, at <http://www.anstaskforce.gov/plan.php>.

²¹⁶ *See* Gulf States Marine Fisheries Commission, *Non-Native Aquatic Species in the Gulf of Mexico and South Atlantic Regions*, at <http://nis.gsmfc.org>.

management plan for Florida.²¹⁷ The ISWG is composed of representatives from nine state agencies (including FWC, DACS, the departments of Environmental Protection and Transportation, and five regional water management districts) and the University of Florida's Institute of Food and Agricultural Science (FL-IFAS).²¹⁸ In 2003, the Governor approved ISWG's statewide plan and each participating state agency signed a Memorandum of Understanding to improve agency collaboration.²¹⁹ In 2004, it found that "preventing the importation of invasive species and identifying pathways of introduction cannot be effectively accomplished in Florida without effective communication between the DGS, [APHIS], DACS, and FWC[C]."²²⁰

The ISWG has pursued both coordination of ISWG members and coordination between federal and state agencies through several means. ISWG's species risk assessment subcommittee was formed to create or adopt a risk analysis methodology for use by the member agencies. FWC, DACS and IFAS cooperated to complete two risk analyses during 2007 and will utilize that experience to refine a methodology for general use.²²¹ The ISWG also proposed the development of biological threat advisory group at each port of entry, an idea first described in the Florida Pest Exclusion Advisory Committee's (PEAC) 2001 report (see Box 4: The Florida Pest Exclusion Advisory Committee).²²² Unfortunately, this proposal has not come to fruition. Finally, the ISWG has specifically identified a need to improve Florida's laws related to nonnative wildlife.²²³

Box 4: The Florida Pest Exclusion Advisory Committee

PEAC was formed in 1999 by the Florida legislature to "conduct a comprehensive review of Florida's existing and proposed exclusion, detection, and response programs" for invasive species. PEAC published the required report in 2001, focusing primarily on plant pest authorities and interactions. While the report does not focus specifically on wildlife and many of its details are no longer accurate as the result of the shift in inspection authority from APHIS to CBP and other regulatory changes, many of PEAC's recommendations remain valid and deserve further consideration.

As noted, the ISWG was created explicitly to create the statewide plan. Having accomplished that, its legal authority and mission are unclear. As a result, the ISWG has no further meetings scheduled and may disband, pending creation of a permanent state invasive species council or further clarification of the working group's continuing role.²²⁴ As a result, the ISWG is unlikely to play a further role in interagency coordination in Florida.

²¹⁷ ISWG, STATEWIDE INVASIVE SPECIES STRATEGIC PLAN FOR FLORIDA 15-16 (2003).

²¹⁸ Although federal agencies were involved in the meetings, they are not represented on ISWG.

²¹⁹ ISWG, Statewide Invasive Species Strategic Plan for Florida (2003). Each agency has signed a memorandum of understanding (MOU) resolving jurisdictional issues and providing for integrated and coordinated activities pursuant to the plan. ISWG, Annual Report of the Invasive Species Working Group, 2004 (2004) [hereinafter 2004 Annual Report]. The MOU also created two subcommittees, one focusing on education and the other on *Caulerpa taxifolia* management. *Caulerpa taxifolia Hybrid Response Plan Initiated*, 20 FLORIDA AQUACULTURE 3 (2003).

²²⁰ ISWG, 2004 Annual Report 1 (2004).

²²¹ DACS, pers. comm..

²²² See generally PEAC, *supra* note 115.

²²³ ISWG, *supra* note 8, at 1-2.

²²⁴ Email from Brian Nelson, Aquatic Plant Management Manager, Southwest Florida Water Management District, to Don Schmitz, Research Program Manager, Florida Department of Environmental Protection (Sep. 11, 2007, 16:18 EST) (on file with author).

Florida Invasive Animal Task Team

The Florida Invasive Animal Task Team (FIATT) is part of the federal-state effort to promote restoration of the Everglades ecosystem. FIATT was established in 2004 by the South Florida Ecosystem Working Group (SFEWG). SFEWG, in turn, is a working group of the South Florida Ecosystem Restoration Task Force (SFERTF), both of which were created by the federal Water Resources Development Act (WRDA) of 1996.²²⁵ Fourteen federal, state, local, and tribal members comprise SFERTF, as stipulated by WRDA. SFERTF is responsible for coordinating the ongoing intergovernmental Everglades restoration projects, including the development of consistent “policies, strategies, plans, programs, projects, activities, and priorities for addressing the restoration, preservation, and protection of the South Florida ecosystem.”²²⁶ SFEWG is responsible for “formulating, recommending, coordinating, and implementing the policies, strategies, plans, programs, projects, activities, and priorities of the Task Force.”²²⁷

FIATT is an advisory body to SFEWG, so its members, like those of its parent, are drawn from federal, state, tribal, and local agencies. FIATT has no regulatory power, but rather organizes, coordinates, and plans for invasive species issues on behalf of SFEWG.²²⁸ SFEWG and SFERTF were created to coordinate the “restoration, preservation, and protection” of the South Florida ecosystem, but have to date addressed primarily the recovery of the Everglades. FIATT has followed SFEWG’s lead, focusing on control and management of existing invasive wildlife. As a result, it has addressed prevention only obliquely. FIATT’s most notable action to date has been designation of a list of invasive species of “special concern” for the South Florida ecosystem.²²⁹ The majority of the members of this list are present in Florida, but a few – such as the brown tree snake (*Boiga irregularis*) are future threats.²³⁰ Other than the creation of this list, FIATT has taken relatively few direct actions to strengthen prevention, although it does serve as an informational resource for policymakers.

Aquaculture Interagency Coordinating Council

The Aquaculture Interagency Coordinating Council (AICC) was established by statute to foster interagency cooperation for the development of Florida’s aquaculture industry.²³¹ The AICC lacks regulatory powers, instead operating on a purely advisory basis. Participating agencies include DACS, the Department of Environmental Protection, FWC, the Office of Tourism, Trade, and Economic Development, the Department of Community Affairs, the Department of Labor and Employment Security, the Florida Institute of Oceanography member institutions, Florida Agriculture and Mechanical University, FL-IFAS, and the Florida Sea Grant Program. The breadth of AICC member agencies underlines the complexity of aquaculture’s regulatory system in

²²⁵ Pub. L. 104-303, § 528(f)-(g), 110 Stat. 3658 (1996).

²²⁶ *Id.* at § 528(g).

²²⁷ *Id.* at § 528(g)(D).

²²⁸ See SFEWG, Implementation of the Invasive Exotic Animal Assessment and Strategy Recommendations – NEATT Directive, available at <http://www.sfrestore.org/issueteams/fiatt/documents/NEATT%20Recommendations.pdf>.

²²⁹ FIATT, *Invasive Species of Special Concern* (2006), available at http://iswgfla.org/files/FIATT_Invasive%20Animal%20Species%20of%20Special%20Concern_082306.pdf.

²³⁰ *Id.*

²³¹ Fla. Stat. ch. 597.006.

Florida.²³² While this complexity underlines the need for a body like the AICC, the AICC's stated purpose to increase aquaculture production suggests that consideration of nonnative species may not be at the forefront of its agenda. The AICC publishes an annual report, as required by statute, that summarizes the accomplishments of each agency. Because AICC has not established a web presence, however, access to that report is limited. To the extent that its activities with DACS have been documented, however, the AICC has not focused on nonnative species prevention.

²³² Florida's aquaculture industry produces an estimated 1500 species of fish, plants, mollusks, crustaceans and reptiles. Farm designs vary by species and location, and include lined and unlined earthen ponds, raceways, indoor tanks or hybrid systems of tanks and ponds, and submerged sovereign land leases. The resultant products are not only sold for food, but are also used in the aquarium, fashion, water gardening, bait, and biological control industries. DACS, FLORIDA AQUACULTURE PLAN 2005-2006 (2005), *available at* <http://www.floridaaquaculture.com/publications/aquaplan.pdf>

VII. Recommendations

This report seeks to identify barriers to cooperative and coordinated enforcement of invasive wildlife prevention authorities, particularly with respect to importation. A variety of limitations affect coordinated and cooperative implementation of the various invasive wildlife prevention laws, including but not limited to turf issues or differences in focus or philosophy, funding and staffing limitations, limited information on laws implemented by other agencies, and the sheer multiplicity of relevant laws and policies. The following recommendations provide tools to overcome these barriers.

1. Facilitate Interagency Cooperation

Establish a state Invasive Species Council

The termination of the ISWG highlights the need for a new statewide body to promote interagency coordination on invasive species issues. In fact, the ISWG itself has recommended that Florida should create a standing invasive species council (ISC) through either executive order or legislation. An ISC with explicit legal authorization can seek appropriations for permanent staff to implement the statewide invasive species plan in addition to carrying on the collaborative work performed by the ISWG to date. In addition to benefiting state interagency coordination, an ISC would permit the state agencies to liaise as a group with federal invasive wildlife agencies, either through NISC or individually. A close state ISC relationship with NISC could assist in the creation of joint federal-state prevention efforts, among other invasive species management benefits.

Create a joint FWS/FWC interdiction task force

Interdiction of illegal wildlife shipments is an increasing concern among law enforcement personnel. While CBP inspections at ports of entry are a key element in stemming this illegal trade, FWS and FWC may also play an important role in tracing the wildlife trade. These agencies should consider developing a joint task force modeled on the joint DACS/APHIS FIST task force, which has successfully halted some plant imports in Florida. Miami's prominence in the wildlife trade makes it a good target for interdiction efforts, and previous federal-state cooperation could ease implementation. In practice, a joint interdiction task force would focus on tracing illegal wildlife shipments through the importation process, working both from detected violations in the state and detected illegal imports to their ultimate destinations in the state. A formal task force structure could simplify interagency cooperation for this interdiction effort and would provide needed a needed forum for information-sharing between state and federal inspectors.

Incorporate all responsible agencies in interagency bodies

Existing interagency bodies – notably FIATT and ISWG – are valuable tools for enhancing invasive animal prevention. These bodies do not include all responsible animal importation agencies, however, limiting their efficacy for promoting efficient and effective importation processes. For example, FDA and CDC do not participate in FIATT or have consistent linkages with state agencies other than the Florida Department of Health. Formalizing

links between public health and wildlife agencies could strengthen enforcement efforts. Similarly, federal agencies do not participate on the ISWG (and are unlikely to participate in an ISC). Links between the FDA, CDC, and FWC are important tools to ensure both that the public health agencies are aware of potential zoonoses carried by commonly-imported nonnative wildlife species and that the FWC is apprised of developments in FDA and CDC regulations and advisories. Further, FDA inspections may reveal violations of FWC regulations and vice versa. Formal links between the agencies are therefore desirable both for training and continuing education and for streamlining law enforcement processes.

Interagency links can be formalized in several ways. First, all responsible federal and state agencies should attend FIATT meetings, despite that body's singular focus on South Florida. This relatively informal link allows agency personnel to build connections on both the federal and state levels. In addition, the Florida ISC, once created, should develop specific links with each federal agency, providing them with the information they need to obtain rapid responses from each state agency with invasive wildlife responsibilities. In addition, each agency's enforcement personnel should foster specific links with their peer agents, both as part of joint training exercises and through the creation of an enforcement handbook specifying specific contact information for inspection and enforcement personnel at each agency.

2. Eliminate Barriers to Information-Sharing

Implement joint training

Importation laws and procedures are complex, requiring inspectors to develop specialized taxonomic and legal knowledge through training programs and on-the-job experience. State and federal agencies are connected both legally and procedurally. FWC inspectors, for example, are deputized FWS agents and therefore can enforce both state and federal laws during state inspections, and FWS agents can use the Lacey Act to enforce predicate violations of state law. As a result, inspectors should ideally be able to recognize violations of other agency regulations. In most cases, however, each agency provides training for its own inspectors on its own regulations. Some agencies do provide some training on other agency provisions – FWC training, for example, has included presentations on USDA and FWS laws and regulations, and DACS has held workshops on its aquaculture certification, best management practices, and submerged sovereign lands leasing practices for state and federal coastal land managers. Nonetheless, each agency's training is performed separately.

Joint training can increase the efficacy of each agency's invasive wildlife prevention actions. Interagency training would provide solid grounding on each agency's regulations – particularly for agencies that are not typically seen as “wildlife agencies,” such as CDC and FDA. Import inspectors would benefit from training on each agency's permit requirements, prohibitions, and restricted species. Facility inspections by state and federal agents – whether for aquaculture, public health, or other reasons – may also turn up violations of laws implemented by other agencies. With joint training, inspectors can learn the required information and can establish contacts within other agencies to enable rapid interagency responses when violations are detected. In addition, economies of scale may permit joint training at minimal cost – or potentially even at a reduced cost.

Develop electronic permitting databases

Federal law requires wildlife importers to be licensed and to inform FWS of the wildlife species they import. Similarly, importation, possession, and other uses of listed species require an FWC permit and/or license. CDC also requires preapproval of imports of some listed species. Each of these agencies thus has access to a powerful source of data on trends in wildlife importation and potential future invasive wildlife threats. Unfortunately, the information submitted by importers could be managed more effectively by federal and state agencies. For example, FWS keeps permit records thorough its Law Enforcement Management Information System (LEMIS), but the LEMIS records lack some important data, are not made in real time, and are unavailable to the public or other agencies – including FWC – unless specifically requested.²³³ Other agencies, notably FWC, rely exclusively on paper permits and maintain no electronic database to permit large-scale review of state-specific import data.

State and federal agencies with import inspection responsibilities, including FWS, FWC, and CDC – should cooperate to develop real-time, searchable electronic databases of all imports.²³⁴ The data collected could be used not only for enhancing the efficacy of inspections but also to determine what species are the subjects of the highest propagule pressure – useful information for use in invasive species policy development for protecting both the environment and public health.. For example, FWC could target its early detection programs around areas and species at particularly high invasion risk. Public accessibility of these databases could also enhance the agencies’ enforcement abilities by harnessing interested citizens, who could determine easily whether exotic wildlife in stores is properly permitted.

Combine and maintain centralized restricted species lists

Each responsible agency restricts the use of nonnative species, imposing limits on importation, possession, sale, and other uses of those species. These rules are applied by inspectors during importation and inspection of aquaculture facilities, pet stores, and other venues. To carry out their duties, inspectors must be able to identify all state and federal listed species and to know which restrictions apply to which species. Centralized, accessible lists may aid them in this task by providing up-to-date, one-stop shopping for biological and legal information.

In Florida, separate centralized lists are available for biological and legal information. FWC has collected these species and provided biological information for each one.²³⁵ ISWG, meanwhile, has collected legal restrictions that apply to each species.²³⁶ The value of these lists can be easily increased by combining the information held by each body and by incorporating Federal listing information. The centralization and maintenance of existing lists would be an appropriate task for the ISC once that body has been created. The ISC could also enhance the content on the lists by, instead of reprinting statutes (as the ISWG has done), providing a species-

²³³ BROKEN SCREENS, *supra* note 11, at 33.

²³⁴ Such systems should avoid manual data entry by importers, to ensure that data is collected and synchronized with the database during the inspection rather than after it has been completed.

²³⁵ FWC, *Welcome to Nonnative Species Information*, at <http://myfwc.com/nonnatives/index.htm>.

²³⁶ ISWG, *Florida’s Prohibited and Restricted Species Lists*, at <http://iswgfla.org/Prohibited%20species.htm>.

by-species summary of restrictions on legal uses that could serve as a quick reference for inspectors.

Update interagency body websites

Developing and maintaining websites allows both agency personnel and the public to obtain information on upcoming projects and activities. Several interagency bodies could improve their web presence to permit greater access to agency expertise and resources. For example, the AICC does not maintain a website. Similarly, the NISC website does not provide access to minutes from recent meetings or other public documentation of its activities, although other useful information is available. An important goal of these interagency bodies is to ease access to information. Effective provision of this information over the internet is a cost-effective way to decrease informational barriers among agencies and between regulators and the regulated community.

3. Enact Legal Reforms

Adopt Preventive Risk Screening for Wildlife Importation

It is currently permissible to import nonnative wildlife into the United States, and to transport it into Florida, without any prescreening for invasion risk. Both the federal and state governments should require risk-based screening prior to importation, adopting a clean-listing methodology in accordance with recommendations made by other groups.²³⁷ In Florida, risk screening could be based on existing trials initiated by the ISWG risk assessment working group and should be used by FWC in determining species for listing. FWC should take a precautionary approach to risk screening by prohibiting the importation, sale, possession, propagation, or other use of species that have not been subjected to risk screening and by refusing to issue permits for facilities or persons wishing to possess or use unscreened species.

Strengthen state laws and regulations

Florida invasive species agencies deserve credit for implementing legal reforms, in part due to an ISWG-led effort to reduce gaps and inconsistencies among their laws and regulations.²³⁸ The legal reform process in the state is not complete, however, as weaknesses remain with respect to invasive wildlife prevention. Further revision of legal authorities will permit agencies to reduce the burdens associated with taxonomic identification and listing and will provide a clearer idea of what species are being possessed in Florida – whether imported or bred domestically. Simplified and strengthened legal authorities can also reduce barriers to interagency cooperation by eliminating gaps and inconsistencies between agency regulations.

FWC has taken concrete steps to simplify and consolidate its nonnative species regulations under the leadership of the new ESCS. This effort should be considered a starting point rather than a destination: FWC should consider imposing more stringent restrictions on

²³⁷ See generally BROKEN SCREENS, *supra* note 11.

²³⁸ This effort was partially based on work by ELI's invasive species program. See generally *Filling the Gaps*, *supra* note 4.

nonnative wildlife possession and importation. First, the “reasonable expectation of escape” clause introduces uncertainty into the regulatory system and should be eliminated in order to further limit the availability of nonnative species through the pet trade and other problematic pathways. In addition, FWC should expand its limitations on the use of listed species to explicitly address uses such as breeding, sale, and purchase of nonnative species that are not currently considered by the regulations.²³⁹ Finally, FWC should consider listing additional species as “prohibited,” paying particular attention to freshwater fish species that might be used in aquaculture.

DACS should also clarify and strengthen the requirements for obtaining certification for aquaculture facility use of nonnative species. As recently witnessed through the introduction of Asian swamp eel, escapes through aquaculture are a virtual certainty.²⁴⁰ DACS therefore should take a precautionary, preventive approach to its certification decisions. Explicit prohibition on culture of FWC-listed conditional species, in addition to the current prohibition on prohibited species, would strengthen DACS’ prevention measures. In addition, DACS should require risk assessment for any unlisted nonnative species for which invasion risk is unknown prior to certifying to any facility for culture of that species.²⁴¹

Strengthen federal laws and policies

Like state laws and regulations, federal invasive wildlife prevention authorities are weak and in need of revision. Federal leadership in policy development should be a priority, particularly for the Fish and Wildlife Service, whose Lacey Act listing practices are particularly problematic. As noted, the FWS should in particular focus on implementing a program for prescreening of nonnative animal imports to determine invasiveness before species are introduced into the country. Other reforms, such as the CDC’s ongoing development of regulations for preventive import restrictions, are equally noteworthy. A notable recent analysis of federal wildlife importation revealed numerous weaknesses that demand modification of laws and regulations.²⁴² Although a full summary of those recommendations would be redundant and is not included here, this report endorses the recommendations and encourages Congress and the federal agencies to adopt them.

²³⁹ These changes would ideally raise all nonnative wildlife to the current “conditional” level, making that list largely repetitive. As a result, FWC could consider further consolidating its list

²⁴⁰ See Marine Aquaculture Task Force, SUSTAINABLE MARINE AQUACULTURE: FULFILLING THE PROMISE, MANAGING THE RISKS 45 *et seq.* (2007) (discussing history of escapes from aquaculture facilities). The Asian swamp eel was first discovered in the wild in Florida in 1994. Jeanne Prok, *Asian Swamp Eel Invasion Increases in Southeast*, ANS DIGEST, Nov. 2000, at 5. Other species, such as the walking catfish and blue tilapia, were established after introduction in the 1960s. USGS, *Clarias batrachus (Linnaeus 1758)* (2006), at <http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=486>; Will A. Strong, FL-IFAS, A LITERATURE REVIEW ON BLUE TILAPIA WITH AN EMPHASIS ON FEEDING HABITS, available at <http://fishweb.ifas.ufl.edu/CourseMaterials/Cichra%20Class/BlueTilapia.pdf>.

²⁴¹ The recent changes to FWC’s nonnative species regulations require amendment of DACS’s aquaculture provisions regarding possession of “restricted” species – a classification that was eliminated by the FWC. This process is currently underway.

²⁴² See generally BROKEN SCREENS, *supra* note 11.

4. Increase funding for invasive wildlife prevention programs

Increase the number of state wildlife inspectors

In comparison to spending on control and management, funding of prevention remains frustratingly small both on the state and federal levels. FWC has been and continues to be limited by its lack of inspectors.²⁴³ FWC should seek funding to create permanent inspector positions at facilities where wildlife is screened for entry into the United States. These inspectors should work directly with CBP and FWS inspectors, providing direct links between the agencies and reducing response times when potential violations of state law are detected by federal inspectors.

Fund Implementation of Statewide Invasive Species Plan

Funding for prevention lags behind funding for control and management across all agencies despite the fact that prevention is the most cost-effective tool for addressing invasive species impacts. Funding for control and management of existing species should not be reduced, but additional funding is needed to implement the statewide plan. Creation of an ISC is a crucial first step, along with creation of permanent staff positions within the ISC. Dedicated funding of this body increases the likelihood that the statewide plan will result in concrete improvement of invasive wildlife prevention on the ground.

5. Support Compliance and Enforcement

Expand reptiles of concern tracking program to all suitable exotic pet species

FWC recently adopted a new regulations mandating microchipping of listed reptile species sold as pets. This regulation should increase compliance by allowing federal and state agents to track the owner of abandoned pets recovered from the wild and enforce existing laws and regulations against them. Although data on the impact of this program on pet releases may not be sufficient to draw conclusions about the program's success, the FWC should consider expanding the program beyond a few reptiles if initial results are positive, particularly to wildlife of concern that does not yet have an established wild population. While the use of microchips or other identifying marks may not be feasible for all species, it is likely that the technique could be used for other exotic pets.

Increase state penalties for noncompliance along with education and amnesty programs

FWC recently instituted a pet amnesty day where pet owners can drop off unwanted pets rather than discard them. The amnesty day is coordinated with a public education campaign to increase public awareness of the problems posed by abandoned exotic pets, and is similar to successful programs initiated in Australia and New Zealand. This novel program promises to increase compliance with Florida's wildlife laws, but it should be associated with a simultaneous increase in penalties for noncompliance. Pet owners now have a legal, nonlethal outlet for discarding their unwanted pets, and FWC and FWS should both increase penalties for

²⁴³ See FILLING THE GAPS, *supra* note 3, at 49 (recommending enhanced funding for border security).

noncompliance and increase their enforcement efforts against owners who choose not to take advantage of the amnesty program.

Appendix: State Species Lists

Table 5. Nonnative species listed by FWC

<i>Tier</i>	<i>Species</i>
Unrestricted	Fathead minnow (<i>Pimephales promelas</i>) Variable platy (<i>Xiphophorus variatus</i>) Coturnix quail (<i>Coturnix coturnix</i>) Ring-necked pheasant (<i>Phasianus colchicus</i>)
General	All nonnative wildlife species not included in another tier
Conditional	Bighead carp (<i>Aristichthys nobilis</i>) Bony-tongue fishes (family Osteoglossidae) except silver arowana (<i>Osteoglossum bicirrhosum</i>) Dorados (genus <i>Salminus</i> , all species) Freshwater stingrays (family Potamotrygonidae, all species) Grass carp (<i>Ctenopharyngodon idella</i>)† Silver carp (<i>Hypophthalmichthys molitrix</i>) Snail or black carp (<i>Mylopharyngodon piceus</i>) Nile perches (genus <i>Lates</i> , all species)† Blue tilapia (<i>Oreochromis aureus</i>)‡ Wami tilapia (<i>Oreochromis hornorum</i>) Mozambique tilapia (<i>Oreochromis mossambicus</i>) Nile tilapia (<i>Oreochromis niloticus</i>) Walking catfish (<i>Clarias batrachus</i>) Blue catfish (<i>Ictalurus furcatus</i>)‡ Australian red claw crayfish (<i>Cherax quadricarinatus</i>)† Red swamp crayfish (<i>Procambarus clarkii</i>)†‡ White river crayfish (<i>Procambarus zonangulus</i>) †‡ Red-eared slider (<i>Trachemys scripta elegans</i>)† Nutria (<i>Myocastor coypu</i>)
Prohibited	African electric catfishes (family Malapteruridae) African tigerfishes (subfamily Hydrocyninae) Airbreathing catfishes (family Clariidae) except <i>Clarias batrachus</i> Candiru catfishes (family Trichomycteridae) Freshwater electric eels (family Electrophoridae) Lampreys (family Petromyzonidae) Piranhas and pirambebas (subfamily Serrasalminae) Snakeheads (family Channidae) Tilapias (genera <i>Tilapia</i> , <i>Sarotherodon</i> and <i>Oreochromis</i>) except listed conditional species Trahiras or tigerfishes (family Erythrinidae) Airsac catfishes (family Heteropneustidae) Green sunfish (<i>Lepomis cyanellus</i>) Australian crayfish (Genus <i>Cherax</i>) except <i>Cherax quadricarinatus</i> Zebra mussels (<i>Dreissena polymorpha</i>) African giant pouched rats (Genus <i>Cricetomys</i>) Mitten crabs (genus <i>Eriocheir</i>) Sea snakes (family Hydrophiidae)† Weeverfishes (Family Trachinidae) Stone fishes (Genus <i>Synanceia</i>)
	† special restrictions apply ‡ geographic exceptions apply

Table 6: FWC listed captive wildlife species

<i>Type</i>	<i>Species</i>	<i>Restrictions</i>
Class I	Chimpanzees (<i>genus Pan</i>) Gorillas (<i>genus Gorilla</i>) Gibbons (<i>genus Hylobates</i>) Drills and mandrills (<i>genus Mandrillus</i>) Orangutans (<i>genus Pongo</i>) Baboons (<i>genus Papio</i>) Siamangs (<i>genus Symphalangus</i>) Gelada baboons (<i>genus Theropithecus</i>) Snow leopards (<i>Panthera uncia</i>) Leopards (<i>Panthera pardus</i>) Jaguars (<i>Panthera onca</i>) Tigers (<i>Panthera tigris</i>) Lions (<i>Panthera leo</i>) Bears (family Ursidae) Rhinoceros (family Rhinocerotidae) Elephants (family Elephantidae) Hippopotamuses (family Hippopotamidae) Cape buffalos (<i>Syncerus caffer caffer</i>) Crocodiles (except dwarf and Congo) (family Crocodylidae) Gavials (family Gavialidae) Black caimans (<i>Melanosuchus niger</i>) Komodo dragons (<i>Varanus komodoensis</i>)	Cannot be possessed for personal use; requires permit
Class II	Howler monkeys (<i>genus Alouatta</i>) Uakaris (<i>genus Cacajao</i>) Mangabeys (<i>genus Cercocebus</i>) Guenons (<i>genus Ceropithecus</i>) Bearded sakis (<i>genus Chiropotes</i>) Guereza monkeys (<i>genus Colobus</i>) Celebes black apes (<i>genus Cynopithecus</i>) Indris (<i>genus Indri</i>) Macaques (<i>genus Macaca</i>) Langurs (<i>genus Presbytis</i>) Douc langurs (<i>genus Pygathrix</i>) Snub-nosed langurs (<i>genus Phinopithecus</i>) Proboscis monkeys (<i>genus Nasalis</i>) Servals (<i>Leptailurus serval</i>) European and Canadian lynx (<i>Lynx lynx</i>) Cougars, panthers (<i>Puma concolor</i>) Bobcats (<i>Lynx rufus</i>) Cheetahs (<i>Acinonyx jubatus</i>) Caracals (<i>Caracal caracal</i>) African golden cats (<i>Profelis aurata</i>) Temminck's golden cats (<i>Profelis temmincki</i>) Fishing cats (<i>Prionailurus viverrina</i>) Ocelots (<i>Leopardus pardalis</i>) Clouded leopards (<i>Neofelis nebulosa</i>) Coyotes (<i>Canis latrans</i>)	Requires special permit for possession for personal use

	<p>Gray wolves (<i>Canis lupus</i>)† Red wolves (<i>Canis niger</i>)† Asiatic jackals (<i>Canis aureus</i>) Black-backed jackals (<i>Canis mesomelas</i>) Side-striped jackals (<i>Canis adustus</i>) Indian dholes (<i>Cuon alpinus</i>) African hunting dogs (<i>Lycaon pictus</i>) Wolverines (<i>Gulo gulo</i>) Honey badgers (<i>Mellivora capensis</i>) American badgers (<i>Taxides taxus</i>) Old World badgers (<i>Meles meles</i>) Binturongs (<i>Arctictis binturong</i>) Hyenas (all species) (<i>family Hyaenidae</i>) Dwarf crocodiles (<i>Osteolaemus tetraspis</i>) Alligators, caimans (except American alligator) (<i>family Alligatoridae</i>) Ostrich (<i>Struthio camelus</i>) Cassowary (<i>Casuarius spp.</i>)</p>	
Class III	All species not in Class I or II and not exempted under Ch. 68A-6.0022	Requires a no-cost permit for possession for personal use
Unrestricted	<p>Reptiles or amphibians (nonvenomous, unprotected) Gerbils, hedgehogs Honey possums, sugar gliders, brushtailed possums Shell parakeets Rats and mice Canaries Moles; shrews Rabbits Squirrels; chipmunks Ferrets (domestic; European) Lovebirds Guinea pigs Cockatiels Hamsters Parrots Finches Myna birds Toucans Doves; ringed, ruddy, and diamond Button quail Prairie dogs Chinchillas</p>	Does not require a permit for possession; Ch. 68A-6.022(2)
Unrestricted	<p>Poultry Hamsters Guinea pigs Domestic rats and mice Gerbils Chameleons (<i>Anolis</i>)</p>	Does not require a permit for sale. Ch. 68A-6.022(3)
	† Genetic limitations apply	

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