



FILLING THE GAPS

TEN STRATEGIES TO STRENGTHEN
INVASIVE SPECIES MANAGEMENT IN FLORIDA

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*Filling the Gaps:
Ten Strategies to Strengthen Invasive Species Management in Florida*

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CHAPTER 1: INTRODUCTION

Of all the states, Florida is among the most affected by harmful non-indigenous species.¹ Non-natives can be found in Florida’s reefs, shorelines, estuaries, forests, lakes, rivers, dunes, swamps, prairies, sand-pine ridges, and beaches—essentially every Florida habitat. “Parts of South Florida look good to the uninitiated,” writes biologist and Pulitzer Prize-winning author E.O. Wilson, “but in the naturalist’s eye it is substantially a Potemkin façade of foreign species.”² While the majority of these non-native species are benign, causing no lasting damage to their new ecosystems and habitats, others—the invasives³—have the potential to cause extreme ecological disruption by outcompeting native species and altering natural habitats.

Perhaps nowhere are these impacts more evident than in the Everglades. Marjory Stoneman Douglas’s famed “River of Grass” once stretched across much of South Florida, the surface and ground water flowing south in a uniform and unchanneled sheet from the Kissimmee chain of lakes to Florida Bay.⁴ Today, however, the glades are dissected by a latticework of more than 1,000 miles of canals, 720 miles of levees, and hundreds of water control structures—the result of more than 100 years of labor to provide suitable farmland and a steady water supply to the rapidly growing South Florida region.⁵

This “re-plumbing” of the Everglades, coupled with pressures from agriculture and urban development, has severely stressed the sensitive ecosystem and increased its vulnerability to invasive species. Old World climbing fern, an exotic plant that enshrouds and smothers native

grasses and trees, has spread from one small infestation in 1979 to more than 200,000 acres today. Escaped or intentionally released exotic pets, including giant Amazonian pythons, are lurking in the channels surrounding Everglades National Park, and evidence suggests they are breeding.⁶ Unless urgent action is taken, an increasing number of experts agree that the unique and diverse ecosystem that inspired Ms. Douglas may be forever lost.

PURPOSE OF THIS REPORT

The state and federal response to invasive species in the Everglades and throughout Florida has been hampered by a convoluted patchwork of laws and regulations, most of which were not originally promulgated with invasive species in mind.⁷ Jurisdictional boundaries, conflicts in agencies’ missions and goals, public apathy, and industry opposition have further stymied effective progress. Formulating a coherent policy response requires a thorough understanding of the gaps and shortcomings in the legal authorities currently available for invasive species management in Florida. In 2001, an interagency task team affiliated with the South Florida Ecosystem Restoration Task Force (SFERTF) identified this need,⁸ and the U.S. Army Corps of Engineers has provided the funding necessary to accomplish this task.⁹

This report builds on the findings in the SFERTF report¹⁰ and the Environmental Law Institute’s

invasive species expertise¹¹ to identify and analyze both the obstacles to and the opportunities for preventing, controlling, managing, and eradicating invasive species in Florida. The centerpiece of this study is an evaluation of the strengths, weaknesses, and gaps in existing legal authorities and the development of concrete recommendations to strengthen invasive species policy in Florida, either through the adoption of new laws, policies, or programs, or through amendments to or creative application of existing laws and regulations. The report covers the entire state of Florida, but devotes a particular focus to the role of federal authority in Everglades restoration. Similarly, although the recommendations are largely directed to federal actors, they include steps that can be taken at all levels of government to improve invasive species management in Florida or in other states facing comparable invasive species threats.

METHODOLOGY

More than thirty invasive species veterans, representing local, state, and federal government agencies and non-governmental organizations in Florida, contributed to this study. Their insights, combined with ELI's legal analysis, form the core of this report. The report breaks down invasive species programs and authorities by the intended purpose or function they are intended to serve. This kind of functional approach ties together descriptions and analysis of related programs and helps highlight gaps and weaknesses. The five functional categories used in this report are not precise classifications, but help clarify the report's presentation.¹²

1) Prevention. This category includes all legal tools and measures taken to prevent the introduction or establishment of new invasive species. Invasive species lists that regulate the import, possession, or sale of specific species are

commonly used prevention tools. Pre-screening requirements, early detection, and rapid response/eradication programs also belong in this category. As the first line of defense against invasives, prevention is often thought to be the most effective and cost-efficient strategy available.

2) Control and Management. This category covers government attempts to control established infestations of invasive species. Because complete eradication is not generally feasible for established species, most of these measures are intended to limit the spread of invasive populations and reduce infestations to manageable levels. Public land management agencies often fund invasive species control projects under their general or "organic" authorities. Regulations requiring control of invasive species on private lands are less common. This category also includes the regulation and use of biological control agents and programs to restore native species and habitat.

3) Research. Research supports each of the other categories of invasive species responses. This umbrella category includes research on the biological traits that make certain species invasive and certain ecosystems susceptible, efforts to understand the major invasion pathways, and attempts to improve existing aquatic and terrestrial control methods (including biocontrol).

4) Education, Outreach, and Public Partnerships. This broad category covers the interface between government programs and private action. It includes, for example, technical assistance and incentive programs to encourage invasive species control on private lands. Government sponsored public awareness campaigns and the development of industry partnerships and "codes of conduct" are other examples. These programs and authorities build the government's capacity to deal with invasives by changing prevailing beliefs and behaviors and by enlisting private activity in a broader campaign.

5) Strategic Planning and Coordination. This category encompasses efforts to bridge gaps between local, state and federal agencies and to set priorities and strategic goals across jurisdictions. Coordinated responses and agency partnerships maximize government resources, avoid redundancy, and drive innovation. Interagency cooperation and strategic planning are particularly important in Florida, given the federal government’s leadership in South Florida Ecosystem Restoration.

ORGANIZATION

The report is organized as follows:

The Federal Legal Framework. This initial section lays out the primary federal authorities that relate to prevention and control of invasive species. As will be explained further, the United States lacks a comprehensive statutory framework for invasive species, and many relevant provisions reside exclusively in agency policies and regulations. This section highlights the fundamental federal authorities in the area and points out the major gaps and weaknesses. The unusual fusion of federal and state authorities driving South Florida Ecosystem Restoration is an important part of Florida’s legal landscape, and is also described in this section.

Ecosystem Restoration Authorities and the State Role. This section briefly describes the network of interrelated federal and state ecosystem restoration authorities that overlay traditional invasive species authorities in Florida. The analysis outlines how government agencies are using their authorities to address invasive species in Florida, particularly with respect to Everglades restoration. Included in this section are state and local programs which put the federal role in context and highlight gaps in government responses.

Gaps and Conflicts Analysis. This section presents the weaknesses, gaps, and conflicts in the fabric of invasive species authority in Florida and emphasizes practical issues of implementation. Most deficiencies were initially revealed through conversations with professionals working on a full spectrum of invasive species issues in Florida. State and federal authorities and programs are analyzed together in order to bring into focus specific areas where existing laws and regulations are inadequate (gaps in authority), situations where agencies could be doing more to fully exercise the authority available to them (gaps in implementation), and examples of direct conflicts and inconsistencies in the legal framework.

Recommendations. In this section, clear recommendations for improving invasive species management in Florida accompany the discussion of gaps. This serves two interrelated goals. The immediate goal is to provide a foundation for future federal contributions to the invasive species fight in South Florida. More broadly, these recommendations can be used to strengthen invasive species control and management throughout Florida, at all levels of government, and in other states facing similar invasive species challenges. The recommended actions are as follows:

- 1) Close the gaps in regulatory authority and implementation;
- 2) Implement a systematic, science-based listing process;
- 3) Beef up border protection;
- 4) Build monitoring and rapid response capacity;
- 5) Devote adequate resources to public lands management;
- 6) Reframe uplands authority to reach private lands;
- 7) Refocus research;
- 8) Raise awareness in the public and beyond;
- 9) Emphasize incentives for private action; and
- 10) Reconcile the state and federal planning processes.

¹ These problems are well-documented. See, e.g., U.S. Congress, Office of Technology Assessment, *Harmful Non-Indigenous Species in the United States*, OTA-F-565 (Sept. 1993) (“OTA Report”); Simberloff, Schmitz, and Brown, *Strangers in Paradise: Impact and Management of Nonindigenous Species in Florida* (Island Press, 1997).

² Wilson’s quote is from *Strangers in Paradise*, *supra*.

³ Executive Order 13112 defines “invasive species” to mean a species (a) that is not native to the ecosystem under consideration; and (b) whose introduction does or is likely to cause economic or environmental harm or harm to human health.

⁴ Ms. Douglas, a tireless advocate for the protection of the Everglades, published her book *The Everglades: River of Grass* in 1947.

⁵ These works are managed by the U.S. Army Corps of Engineers and their local sponsor, the South Florida Water Management District, in accordance with the “Central and South Florida (C&SF) Project” authorized by section 203 of the Flood Control Act of 1948 (62 Stat. 1176).

⁶ Abby Goodnough’s *New York Times* article, “Forget the Gators: Exotic Pets Run Wild in Florida” (Feb. 29, 2004), chronicles the extent of the Everglades infestation.

⁷ For an in-depth discussion of the gaps and inconsistencies in U.S. federal invasive species law, see M. Miller and R. Fabian, *Harmful Invasive Species: Legal Responses*, Ch. 6 (ELI, 2004). The OTA Report, note 1, *supra*, contains perhaps the earliest and most comprehensive treatment of the issues.

⁸ The report was identified as a critical project in *Weeds Won’t Wait: The Strategic Plan for Managing Florida’s Invasive Exotic Plants* (2001), produced by the Noxious Exotic Weed Task Team (NEWTT) as part of their effort on behalf of the South Florida Ecosystem Restoration Task Force and Working Group.

⁹ This study is part of a broader special-report funded by the Corps on the role of federal agencies in controlling and managing invasive exotic plants as part of Everglades’ restoration.

¹⁰ See *Weeds Won’t Wait*, note 8, *supra*.

¹¹ Invasive species management is a primary focus of ELI’s State Biodiversity Program. The present study draws, in part, from ELI’s *Halting the Invasion: State Tools for Invasive Species Management* (2002) and *Harmful Invasive Species: Legal Responses* (edited by M. Miller and R. Fabian) (2004); along with various other ELI studies and reports, including *Invasive Species Control: A Comprehensive Model Law* (2004) and *Making a List: Prevention Strategies for Invasive Plants in the Great Lakes States* (2004).

¹² The five categories correspond roughly, but not exactly, to the categorizations used in the National Invasive Species Council’s 2001 Management Plan and ELI’s *Halting the Invasion* report. NISC selected nine categories for its action plan for the nation:

- 1) Leadership and Coordination;
- 2) Prevention;
- 3) Early Detection and Rapid Response;
- 4) Control and Management;
- 5) Restoration;
- 6) International Cooperation;
- 7) Research;
- 8) Information Management; and
- 9) Education and Public Awareness.

Halting the Invasion used:

- 1) Prevention;
- 2) Regulation;
- 3) Control and Management;
- 4) Enforcement and Implementation; and
- 5) Coordination.

CHAPTER 2: THE FEDERAL LEGAL FRAMEWORK

Invasive species have beleaguered the South Florida economy and environment for well over a century. According to local legend, one Mrs. Fuller bought a “floating aquatic plant with a pretty purple flower,” a water hyacinth, from the New Orleans World Fair in the late 1800s. After the South American species took over her goldfish pond, the story goes, she pulled the plant up and threw it into the St. John’s River. By 1897, the invasive species had choked commerce and navigation throughout the Gulf States. Congress responded in 1899 by authorizing the expenditure of \$25,000 for the construction of two boats to remove water hyacinths, \$1,000 for log booms to use with the boats, and \$10,000 for operating costs in the states of Florida and Louisiana.¹ Thus began the Army Corps of Engineers’ pitched battle against invasive aquatic vegetation, that continues to this day.

Water hyacinth was not the first, and is certainly not the last, in an invasive menagerie that is causing inestimable damages in Florida and across the United States. In many cases, the government has attempted to stem the tide through legislative enactment and expenditure. Unfortunately, like the case of the water hyacinth, these efforts often follow a familiar pattern. Little is done to prevent the initial introduction of the species, and expensive control measures are required when major infestations result.

This pattern of ad hoc, reactive government action has left scores of overlapping, piecemeal legal authorities. There is no single federal law that addresses invasive species in a proactive and comprehensive manner. At best, our laws target a

particular class of invasive species, such as plant pests, or pests and diseases of livestock, or “injurious” wildlife. At the same time, numerous minor provisions provide several agencies with fragmented authority that could be used to address certain invasive species in circumscribed situations. Marc Miller calls this the “paradox” of U.S. invasive species law—the abundance and, at the same time, essential absence of relevant legal authority.²

An exhaustive accounting of all potentially relevant federal authority would be a laborious task. Instead, this section provides a broad overview of the primary federal laws that relate to invasive species, and highlights prominent weaknesses and gaps. A full discussion of how these gaps affect invasive species prevention and management in Florida is found in Chapter 4. Here as throughout the report, the presentation is organized according to functional categories (prevention, control and management, etc.).

PREVENTION

Several federal laws are intended to protect the nation from introductions of individual species or classes of species, but gaps in the framework abound.

The Lacey Act

(18 U.S.C. § 42 and 16 U.S.C. §§ 3371 et seq.)

Dating from the early 1900s, the Lacey Act is one of the federal government’s first attempts to deal



J.S. PETERSON, USDA-NRCS PLANTS DATABASE. WATER HYACINTH.

with invasive animal species (although the term “invasive species” had not yet been coined). The Lacey Act prohibits the importation of certain categories of fish and wildlife determined to be “injurious to human beings, to the interests of agriculture, horticulture, forestry, or to wildlife or the wildlife resources of the United States.”³ The Act delegates authority to the Secretary of the Interior to create a list of prohibited injurious species.⁴ In 1981, Lacey Act amendments “incorporated” other federal and state wildlife laws 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.⁵ Today, wildlife inspectors from the U.S. Fish and Wildlife Service’s Division of Law Enforcement operate wildlife inspection offices at thirteen designated ports across the country to enforce the provisions of the Act.⁶

A major weakness of the law is limitation of federal listing authority to: a) animal species; b) only certain classes of animals (namely mammals, birds, fish, crustacea, amphibians, and reptiles); and c) only “wild” members of the class.⁷ Of these categories, only those species determined to be “injurious” to the interests of agriculture,

horticulture, forestry, and wildlife (or the vegetation upon which they depend) may be listed.⁸ 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).

The U.S. Department of the Interior (DOI) has used its Lacey Act authority sparingly, listing less than twenty genera of prohibited wildlife.⁹ The Act’s “dirty list” approach¹⁰ contributes to this problem—species are only regulated after they have become major problems and have generated enough political momentum to spur action. There is no required pre-screening of potentially harmful species before they are allowed to be imported freely.

One strength of the Lacey Act Amendments is that they specifically leave U.S. states free to make or enforce laws “not inconsistent” with the federal provisions.¹¹ This feature, coupled with the Amendments’ incorporation of other state and federal wildlife laws, means that the U.S. FWS has much broader enforcement authority than listing authority. This enforcement authority extends to wild animals protected by state law and indigenous plants protected by the Convention on International Trade in Endangered Species (CITES) or a state endangered species law.¹²

The Plant Protection Act (PPA) ***(7 U.S.C. §§ 7701 et seq.)***

The Plant Protection Act consolidates and updates most of the Department of Agriculture’s prior statutory authorities concerning plant protection (including former provisions of the Plant Quarantine Act, the Federal Plant Pest Act, and the Federal Noxious Weed Act).¹³ The Act authorizes the Secretary of Agriculture to “prohibit or restrict the importation, entry, exportation, or interstate movement of any plant, plant product, biological control organism, noxious weed, article, or means of conveyance, if the Secretary determines that the prohibition or restriction is necessary to prevent the introduction into the United States, or

dissemination of a plant pest or noxious weed within the United States.”¹⁴ APHIS Plant Protection and Quarantine (PPQ) requires permits for imports and interstate movement of any live plant pests,¹⁵ biological control organisms, or federal noxious weeds.¹⁶ Articles from foreign sources that can provide a pathway for the introduction of pests, such as wood products, soil, and fresh fruits and vegetables, are also strictly controlled and require permits.¹⁷

The initial line of defense is a network of fifteen Plant Inspection Stations located at major U.S. ports of entry. At these plant inspection stations, Customs and Border Protection (CBP) officers work with PPQ scientists (including botanists, entomologists, and plant pathologists) to identify pests, diseases, and prohibited plants and enforce the requirements of the PPA. Emergency measures and quarantines are authorized if pests slip through border defenses in order to slow potential invasive infestations.¹⁸ APHIS PPQ’s Safeguarding, Intervention, and Trade Compliance (SITC) program works alongside the inspection protocol to detect and close pathways for smuggled products and potential exotic pest introductions.

The Act has several strong points. It authorizes a **federal noxious weed list** and imposes restrictions on the entry and movement of listed species within the United States.¹⁹ The statutory definition of “noxious weed” also expands the department’s jurisdiction beyond traditional agricultural pests to plants that can “directly or indirectly” injure “the natural resources of the United States, the public health, or the environment.”²⁰ Unlike former federal plant protection laws, it provides clear authority to regulate the interstate movement of plant pests and noxious weeds rather than just importation.²¹ It also authorizes emergency remedial measures within a state (i.e., when interstate movement is not involved) if “the measures being taken by the State are inadequate to eradicate the plant pest or noxious weed.”²²

The Plant Protection Act’s consolidation of ten statutes greatly simplifies the administration of federal plant protection authority. However, gaps

remain. The Secretary of Agriculture’s authority to declare quarantines, declare extraordinary emergencies, or take other remedial measures is limited to plant pests or noxious weeds that are “new to or not known to be widely prevalent or distributed within and throughout the United States.”²³ This excludes a significant number of invasive plants and pests that have already become widely established in the United States. In addition, the Federal Noxious Weed list retains a time-consuming “dirty list” approach, increasing the likelihood that species will be listed only after they have already become major problems.

Unlike the Lacey Act, the PPA does not incorporate state plant protection laws. Instead, it specifically preempts state and local plant protection regulations that are more stringent than the federal requirements unless the state can demonstrate a “special need” for additional restrictions.²⁴ Such a demonstration must be based on “sound scientific data or a thorough risk assessment.”²⁵

The Animal Health Protection Act (AHPA) ***(7 U.S.C. §§ 8301 et seq.)***

In 2002, Congress consolidated all of the existing animal quarantine and related laws—some dating back to the late 1800’s—and replaced them with the Animal Health Protection Act of 2002. The AHPA grants broad authority to the Secretary of Agriculture to control pests and diseases of livestock through import restrictions, quarantines, and eradication programs.²⁶ APHIS administers the AHPA and restricts the entry of certain live farm or game animals and birds (including carcasses, meat and trophy skins), poultry and other birds (including hatching eggs), and the entry and interstate shipment of potential carriers of animal diseases under the Act’s authority. Some animals are prohibited; others must be cleared at USDA Animal Import Centers or quarantine stations after entry.²⁷

Unlike the PPA, the AHPA retains a traditional focus on agriculture, and does not expand USDA’s authority to consider pests and diseases that are not

specific to livestock.²⁸ In addition, the definition of “pests” does not encompass invasive vertebrate animals.²⁹ These gaps greatly limit the AHPA’s usefulness as a general invasive species prevention tool. Still, there are a few potential applications. For example, AHPA authority extends to any animal or conveyance carrying a regulated pest or disease. Therefore, exotic birds carrying a pest or disease that could affect poultry (or other livestock) may be quarantined under AHPA authority.

The National Invasive Species Act (NISA)
(16 U.S.C. §§ 4701 et seq.)

Despite its broad title, the National Invasive Species Act (NISA) is narrowly focused on one class of species (aquatic nuisance species, or ANS) and one pathway (the exchange of ballast water). NISA created an Aquatic Nuisance Species Task Force to develop and implement programs to prevent the introduction and dispersal of aquatic nuisance species.³⁰ NISA also directed the U.S. Coast Guard to develop guidelines and regulations to prevent ANS introductions through ballast water exchange in U.S. waters.³¹ These guidelines were initially voluntary, but in June 2002 the Coast Guard began working on regulations to require mandatory ballast water management practices for all ships entering U.S. ports from outside the Exclusive Economic Zone. The Coast Guard published a proposed rule in 2003,³² and is expected to have a final rule by the fall of 2004.³³

NISA authorization expired in 2002, and new bills are pending in Congress that would provide a more comprehensive approach to ANS prevention and control, including more effective and timely ballast water standards.³⁴

Miscellaneous Prevention Authorities

There are many other minor provisions that relate in some way to invasive species prevention. The **Federal Seed Act** (7 U.S.C. §§ 1581 *et seq.*) requires accurate labeling of noxious weed seeds moving in interstate and foreign commerce. The **Alien Species Prevention Enforcement Act of 1992** (ASPEA) (Pub. L. 102-393) amended the

Postal Service’s “nonmailable matter” provisions (U.S.C. Title 39) to include species identified under the Lacey Act and Plant Pest Acts. Other miscellaneous authorities regulate the use of genetically engineered organisms³⁵ and introductions of exotic species in specific conservation areas.³⁶

CONTROL AND MANAGEMENT

There are very few federal authorities that directly address the control and management of invasive species. The Lacey Act is silent on control and management measures. The Plant Protection Act includes a few provisions on the control of grasshoppers and Mormon crickets on federal lands³⁷ and the preparation of integrated management plans for noxious weeds.³⁸ The National Invasive Species Act authorizes the Aquatic Nuisance Species Task Force to develop cooperative efforts to control established aquatic nuisance species³⁹ and to assist states with the preparation of aquatic nuisance species management plans.⁴⁰ Federal agencies typically have authority to control invasive species on lands and waters under their jurisdiction, but the effectiveness of this authority is often limited by the high cost of invasives control and a lack of dedicated funding.

The Animal Damage Control Act (ADCA)
(7 U.S.C. §§ 426-426c)

The Animal Damage Control Act 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.”⁴¹ This broadly worded law dates back to 1931 and has been traditionally used to control predators of livestock in the West. However, the Act was comprehensively amended in 2000 to clarify that its scope extends beyond the protection of

agricultural and other economic interests to include wildlife threats to public health and the environment.⁴² These amendments give APHIS a broad mandate for control of invasive animal species on both public and private lands. APHIS Wildlife Services has tentatively begun to use this authority to control brown tree snakes in Guam, invasive coqui frogs in Hawaii, and feral pigs in Florida.

Although the statute is notably broad, there are a few limitations. The ADCA authorizes the USDA to “take any action the Secretary considers necessary” in conducting a program of wildlife services, but it is not clear if this includes the authority to promulgate regulations.⁴³ Therefore, the agency can use the Act to authorize control of injurious species, but not to manage their import or use. Additionally, APHIS has applied the ADCA only to vertebrate animal species,⁴⁴ although the term “injurious animal” is not defined by the Act.

Federal Land Management Authorities

Most activities to control and manage invasive species on federal lands are carried out under the authority of general federal land management laws and agency organic acts. The **Federal Land Policy and Management Act (FLPMA)** (P.L. 94-579, 43 U.S.C. § 1701 *et seq.*) declares congressional policy for the management of federal lands. FLPMA calls for management that will protect the

quality of environmental and ecological values according to the principles of multiple use and sustained yield. Other federal laws address specific categories of public lands. These laws, while narrower in applicability, are just as sweeping in scope. For example, the **National Park Service Organic Act** (16 U.S.C. § 1 *et seq.*) created the Park Service to promote and regulate the use of park system lands in a manner that “will leave them unimpaired for the enjoyment of future generations.” The **National Wildlife Refuge System Administration Act** (16 U.S.C. § 668dd) requires the Fish and Wildlife Service to provide for the “conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats” and to “ensure that the biological integrity, diversity, and environmental health of the System are maintained.” USDA’s authority to manage and protect National Forest System lands originates in the **Organic Administration Act of 1897**, as amended (16 U.S.C. § 551); the **Multiple-Use Sustained-Yield Act**, Pub. L. 94-588 (16 U.S.C. §§ 528-531); and the **Forest and Rangeland Renewable Resources Planning Act**, Pub. L. 93-378, as amended by the **National Forest Management Act**, Pub. L. 94-588 (16 U.S.C. §§ 1600 *et seq.*).

Federal agencies use these foundational laws to formulate guidelines and policies for the

Table 1: U.S. Army Corps of Engineers Aquatic Plant Control Programs

Program	Original Authority	Eligible waters	Cost-Share
Removal of Aquatic Growth (RAG)	Rivers and Harbors Act of 1899, Ch. 425 ⁱ	Only federally designated navigation channels	100% federal
Aquatic Plant Control (APC)	Rivers and Harbors Act of 1958, Sec. 104 ⁱⁱ	All public waters	70% federal/ 30% local

ⁱ As amended by subsequent legislation, including the Rivers and Harbors Acts of 1902 (Ch. 1079); 1905 (Ch. 1482); 1912 (Ch. 253); and 1916.

ⁱⁱ As amended (33 U.S.C. § 610). Implementing regulations are found in Army Corps regulations at 33 C.F.R. Part 273.

Table 2: U.S. Army Corps of Engineers Continuing Authorities Programs (CAP)

	“Section 1135”	“Section 206”
Authority	33 U.S.C. § 2309a	33 U.S.C. § 2330
Project purpose	Restore fish or wildlife habitat impacted by a Corps project	Restore fish or wildlife habitat (not necessarily related to a Corps project)
Sponsor restrictions	Public agency, some private interests, or large nonprofit organization	Same as sec. 1135
Sponsor responsibilities	Acquire needed land, easements, etc; operate and maintain project; and provide non-federal cost share	Same as sec. 1135
Cost-sharing	75% federal, 25% non-federal	65% federal, 35% non-federal
Maximum federal share	\$5 million per project, \$25 million for the program (annually)	Same as sec. 1135

management of invasive species on jurisdictional lands.⁴⁵ They afford federal agencies great discretion to choose control techniques and their targets.⁴⁶ However, the laws have been generally ineffective in controlling invasive species infestations for two main reasons. First, they apply only on federal lands. Adjacent private lands are off-limits, even if they are the source of the invasions in concern. Secondly, these authorities do not create a source of funding for invasive species control projects. Therefore, federal land managers often cannot afford to divert resources from competing agency needs such as facility maintenance, public use management, law enforcement, and other habitat management priorities.

U.S. Army Corps of Engineers Authorities

Several laws, including Section 10 of the **Rivers and Harbors Act of 1899** (33 U.S.C. § 403), Sections 2 and 4 of the **Flood Control Act of 1944**, (33 U.S.C. § 701-a, 16 U.S.C. § 460d), and Sections 1 and 2 of the **Forest Cover Act of 1960** (16 U.S.C. § 580m-n) provide general authority to the U.S. Army Corps of Engineers Civil Works

Program to fund and manage the navigable waters of the United States. This includes the operation and maintenance of federally-owned water resource projects, as well as the development and restoration of the nation’s water-related resources.⁴⁷ The Corps uses this general operations and maintenance (O&M) authority to remove invasive aquatic vegetation that interferes with flood control, navigation, irrigation, water supply, and fish and wildlife conservation in Corps-managed federally designated navigation channels.

The Corps’ authority to control invasive aquatic weeds has also grown since its first experience with water hyacinth in 1899. Mechanical and chemical controls were added to the Corps’ arsenal in 1902.⁴⁸ In 1958, Congress approved an “Expanded Project for Aquatic Plant Control,” which authorized the removal of several new aquatic plant species “in the combined interest of navigation, flood control, drainage, agriculture, fish and wildlife conservation, public health and related purposes....”⁴⁹ Today, these authorities are consolidated in the Corps’ **Removal of Aquatic Growth (RAG) and Aquatic Plant Control (APC) Programs**, summarized in Table 1.

THE COMPREHENSIVE EVERGLADES RESTORATION PLAN (CERP)

In 1948, Congress authorized the U.S. Army Corps of Engineers to construct the Central and Southern Florida (C&SF) Project, a massive water delivery system encompassing the Everglades and intended to ensure adequate water supply and flood control for the rapidly growing region.ⁱ In 1992, aware that the C&SF Project had severely impacted the South Florida environment, Congress directed the Chief of Engineers to prepare a comprehensive review to determine whether modifications to the existing Project were advisable.ⁱⁱ This “Restudy” resulted in the development of a Comprehensive Everglades Restoration Plan (CERP), which was approved by Congress in Sec. 601 of WRDA 2000 (Pub. L. 106-541).

CERP has been described as the world’s largest ecosystem restoration effort. It includes more than sixty elements, will take more than thirty years to construct,

and will cost an estimated \$7.8 billion shared between the federal government and the state of Florida.ⁱⁱⁱ The initial round of CERP projects focus primarily on water allocation. Project engineers are designing and constructing vast water preserve and storage areas (including large underground storage reservoirs), and are removing barriers to sheetflow. These initial steps are intended to restore a more natural hydrologic regime and to set the baseline conditions for healthy natural communities.^{iv} Although a few projects incorporate some invasive species components, there has been no comprehensive, systemic approach. However, many believe that the destructive potential of invasive species in South Florida has exceeded original expectations,^v and that a new focus on invasives is needed in order to achieve the Plan’s overarching restoration goal (set forth in Table 3).

Table 3: Comprehensive Everglades Restoration Plan’s Goal

<p>Purpose of the Restudy (WRDA 1996): “Restoring, preserving, and protecting the South Florida ecosystem.”^{vi}</p>
<p>Congress’s instructions to the Corps of Engineers (WRDA 2000): “Establish a process to ensure the protection of the natural system consistent with the goals and purposes of the Plan.”^{vii}</p>
<p>CERP’s Restoration Goal (CERP Final Programmatic Regulations): “The recovery and protection of the South Florida ecosystem so that it once again achieves and sustains those essential hydrological and biological characteristics that defined the undisturbed South Florida ecosystem.”^{viii}</p>

ⁱ See Sec. 203 of the Flood Control Act of 1948, 62 Stat. 1176. A full description of the Central and Southern Florida Project is available at: http://www.evergladesplan.org/about/rest_plan_csf_devel.cfm.

ⁱⁱ See Sec. 309 of WRDA 1992 (Pub. L. 102-580). Congress expanded the Restudy and authorized additional critical restoration projects in 1996. See Sec. 528 of WRDA 1996 (Pub. L. 104-303) (directing the Secretary of the Army to develop a “comprehensive plan for the purpose of restoring, preserving, and protecting the South Florida ecosystem”).

ⁱⁱⁱ CERP’s official website provides an excellent overview, <http://www.evergladesplan.org>.

^{iv} SFERTF’s integrated plan for South Florida Ecosystem Restoration, *Success in the Making*, elaborates this premise. It describes the overall goals as follows: Goal 1: Get the Water Right; Goal 2: Restore and Enhance the Natural System; Goal 3: Transform the Built Environment. The full report is available at: <http://www.sfrestore.org/documents/success/06.htm>.

^v There are several reasons for this. First, invasives have colonized impacted ecosystems faster than originally expected. In addition, the piecemeal incorporation of invasive species components into individual water delivery projects leaves significant unmanaged areas. Therefore, invasives simply reinfest project areas when work is complete. Finally, many project components addressing invasives are cut out of CERP projects as their scope is narrowed between design and implementation.

^{vi} See WRDA 1996 § 528(b) (“The Secretary shall develop, as expeditiously as practicable, a proposed comprehensive plan for the purpose of restoring, preserving, and protecting the South Florida ecosystem.”).

^{vii} “The Secretary shall ... promulgate programmatic regulations to ensure that the goals and purposes of the Plan are achieved.” WRDA 2000 §601(h)(3). These Programmatic Regulations must “establish a process ... to ensure the protection of the natural system consistent with the goals and purposes of the Plan.” *Id.*

^{viii} See 33 CFR § 385.3 (CERP Final Programmatic Regulations) (Restoration means the recovery and protection of the South Florida ecosystem so that it once again achieves and sustains those essential hydrological and biological characteristics that defined the undisturbed South Florida ecosystem.). See also 68 Fed. Reg. at 64205 (Defining Restoration).

While the traditional RAG and APC programs are limited to aquatic plants (and often limited to work in federal navigation channels), the Corps has much broader authority to address invasive species through newer **ecosystem restoration authorities**. Although the Army Corps of Engineers has historically focused on flood control and navigation, its primary mission “has matured” to now include environmental protection.⁵⁰ This new outlook involves an “ecosystem approach”⁵¹ that “consists of restoring and/or protecting the structure and function of an ecosystem, or parts thereof, recognizing that all its components are interrelated.”⁵² A “large body of legislation” supports this new environmental protection mission.⁵³

The broad restoration authority can be triggered in several ways. **Reconnaissance studies** can be initiated under Section 216 of the Rivers and Harbors Act of 1970 (Pub. L. 91-611) or by individual study authorities enacted in Congress. These studies evaluate existing Army Corps projects and recommend modifications in order to improve the environment.⁵⁴ The Restudy of the Corps’ Central and South Florida Project, which led to the development of the Comprehensive Everglades Restoration Plan (CERP), is a good example (*see* sidebar on CERP). In addition, the Corps’ **Continuing Authorities Programs (CAP)** allow local sponsors to approach the Corps with cost-sharing proposals for restoration projects.⁵⁵ These studies, which often have invasive species components, do not require specific authorization by Congress. Table 2 provides greater detail on these programs.

The concept of **adaptive management** is a crucial element of CERP. The long-term nature of the Plan requires periodic reassessment and design modifications in order to ensure that its goals and purposes are fulfilled.⁵⁶ This process is guided by RECOVER (Restoration Coordination and Verification), an interagency and interdisciplinary scientific and technical team that “support[s] implementation of the Plan with the overall goal of ensuring that the goals and purposes of the Plan are

achieved.”⁵⁷ In considering how the Plan may be improved, the Corps’ Programmatic Regulations state that:

the Corps of Engineers and non-federal project sponsors specifically shall consider modifying the design or operational plan for a project of the Plan not yet implemented; modifying the sequence or schedule for implementation of the Plan; adding new components to the Plan or deleting components not yet implemented; removing or modifying a component of the Plan already in place; or a combination of any of these actions.⁵⁸

There are several ways that this adaptive management process could be employed to better address invasive species in Florida. First, adaptive management could lead to *modifications of existing CERP projects* to improve their performance with respect to invasive species management.⁵⁹ For example, technologies to keep invasives out of natural areas, like fish screens, could have a dramatic impact on ecosystem health, and are much less costly than control and eradication efforts.⁶⁰ RECOVER could lead a technical review of CERP technical design and operation plans to minimize the introduction of invasives into the Everglades.⁶¹

The Corps could also *design and implement one or more separate CERP projects* to improve invasive species management in Florida.⁶² The South Florida Ecosystem Restoration Task Force could help formulate potential projects and justify their ability to contribute to the goals and purposes of the Plan. Ideal projects would address invasives throughout the study area, and could incorporate recommendations from the ISWG and SFERTF strategic planning processes as well as this report. Such an approach is not unprecedented. In 2002, the Corps implemented a CERP project focused on improving the research, quarantine, and release of biological control agents for invasive plants

throughout South Florida.⁶³ While the project as currently planned is focused exclusively on biocontrol, it provides an important example of the type of stand-alone invasive species projects available to the Corps under its restoration authorities.

Finally, adaptive management could result in a *Comprehensive Plan Modification* to broadly reevaluate and enhance the role of invasive species management through CERP. The Corps of Engineers and South Florida Water Management District may initiate a Comprehensive Plan Modification Report “whenever significant revisions to the Plan are necessary to ensure that the goals and purposes of the Plan are met.”⁶⁴

RESEARCH

There are several federal research programs that have some application to invasive species prevention and control. USDA’s Agricultural Research Service (ARS) is a leader in biocontrol research.⁶⁵ The National Invasive Species Act funded several research grants on aquatic nuisance species prevention and control.⁶⁶ USDA Wildlife Services research efforts target introduced and invasive predator species that can devastate island habitats.⁶⁷ The U.S. Army Corps of Engineers maintains a Center for Aquatic Plant Research and Technology (CAPRT) in Vicksburg, Mississippi that focuses on biological control, chemical control, ecological assessment, and management strategies for problem aquatic plants. The U.S. Geological Survey (USGS)⁶⁸ and the National Oceanic and Atmospheric Administration (NOAA)⁶⁹ also conduct invasive species research.

Notably, there are no federal programs sponsoring comprehensive invasive species research across taxa.

EDUCATION, OUTREACH, AND PUBLIC PARTNERSHIP

The federal government offers several technical assistance and cost-sharing opportunities that can be used by private landowners and non-federal agencies to address invasive species issues. A few of the most important programs are outlined in this section. Invasive species projects must compete with other natural resource and habitat-related proposals for funding, and the total amount of funding available is relatively modest in comparison to the scope of overall invasive species control needs. Despite these limitations, these programs are an important resource for invasive species control on private lands and often spur creative partnerships and innovative actions to restore and manage degraded habitats.

Natural Resources

Conservation Service (NRCS) Programs

The Natural Resources Conservation Service provides leadership in partnership efforts to help private landowners conserve, maintain, and improve America’s natural resources.⁷⁰ The Service’s roots are in the soil conservation movement of the 1930s; the program continues to operate under the authority of the Soil Conservation and Domestic Allotment Act (Pub. L. 74-46, as amended (16 U.S.C. §§ 590(a)-590(f)), which created the Soil Conservation Service in 1935. However, NRCS programs now reflect a broader conservation mission. The Conservation Technical Assistance Program (CTAP) provides voluntary technical assistance in areas such as soil health, water quality, wetlands enhancement, habitat improvement, and other natural resource issues to individuals, communities, units of state and local government, and others interested in implementing conservation practices.

The Farm Security and Rural Investment Act (2002 Farm Bill), Pub. L. 107-171, reauthorized several NRCS voluntary partnership programs that

Table 4: Selected Invasive Species Bills in the 108th Congress

<p>H.R. 119, The Harmful Invasive Weed Control Act Sponsor: Joel Hefley (CO) Status: Referred to House Committee on Resources, Committee on Agriculture</p> <ul style="list-style-type: none"> • Establishes a national program in the Department of the Interior to provide financial assistance through states to eligible weed management entities to control invasive weeds on public and private land. • Authorizes \$100 million per year from 2003-2007. • Requires states to use seventy-five percent of financial awards to weed management entities; no more than twenty-five percent for incentives. Requires a fifty percent cost-share with non-federal dollars or in-kind services. • Prohibits such assistance from being used to carry out projects to control or eradicate animal pests. • Requires the consent of the landowner for any activity involving real property. • Requires the Secretary to coordinate with the Federal Interagency Committee for the Management of Noxious and Exotic Weeds (FICMNEW).
<p>S. 144, The Noxious Weed Control Act of 2003 Sponsor: Larry Craig (ID) Status: Passed Senate (3/4/2003) Referred to House Committee on Resources, Committee on Agriculture</p> <ul style="list-style-type: none"> • Establishes a national program in the Department of the Interior to provide financial assistance through states to eligible weed management entities to control invasive weeds on public and private lands. • Authorizes \$100 million per year from 2003-2007. • Limits the federal share of any project or activity approved by a state or Indian tribe under this Act to fifty percent, with exceptions to meet the needs of underserved areas or to address critical needs. • Requires the consent of the landowner for any activity carried out under this Act involving real property. • Prohibits the use of funding under this Act to carry out projects to: (1) control or eradicate animal pests or submerged or floating noxious aquatic weeds; or (2) protect an agricultural commodity other than livestock or an animal—or insect—based product.
<p>H.R. 266 and S. 536, The National Invasive Species Council Act Sponsors: House version, Vernon Ehlers (MI); Senate version, Mike DeWine (OH) Status: House version, referred to House Committee on Resources; Senate version, referred to Committee on Environment and Public Works</p> <ul style="list-style-type: none"> • Recognizes the National Invasive Species Council as an independent executive branch entity and authorizes the Council to provide coordination among federal agencies on invasive species issues.
<p>H.R. 2310, Species Protection and Conservation of the Environment Act (SPACE) Sponsor: Nick Rahall (WV) Status: Referred to House Committee on Resources</p> <ul style="list-style-type: none"> • Authorizes the Secretary of the Interior to make renewable two-year Aldo Leopold Native Heritage Grants for both terrestrial and aquatic invasive species control projects to states, local governments, interstate or regional agencies, or private persons. • Establishes a grant program to help states assess invasive species restoration needs, action priorities, and capacity. • Establishes funding for rapid response to new outbreaks. • Establishes the National Invasive Species Council and Invasive Species Advisory Committee to provide leadership and coordination among federal agencies, and between the federal government and state and local governments. • Authorizes \$80 million in 2004, increasing to \$94 million in 2008.

provide technical, educational, and financial assistance to landowners in order to enhance environmental conservation. These programs represent one of the few ways that federal resources can be applied to invasive species problems in purely private lands. The Environmental Quality Incentives Program (EQIP) is targeted at agricultural lands, and offers resources to farmers and ranchers who face serious threats to soil, water, and related natural resources.⁷¹ The Wetlands Reserve Program (WRP) provides an opportunity for landowners to receive financial incentives to restore wetlands in exchange for retiring marginal agricultural land.⁷² Finally, the Wildlife Habitat Incentives Program (WHIP) is open to all landowners that are interested in establishing or improving fish and wildlife habitat on their property.⁷³

Cooperative Forestry Assistance

The U.S. Forest Service (USFS) plays a role in managing the nearly 500 million acres of non-federal forest land in the United States. USFS Cooperative Forestry Staff work with states, private landowners, and other partners on a variety of programs to promote good stewardship of private forestland. The Forest Stewardship Program (FSP), authorized by the Cooperative Forestry Assistance Act of 1978, Pub. L. 95-313, as amended (16 USC §§ 2101-2111) is one example. FSP provides technical assistance, through state forestry agency partners, for non-industrial private forest owners to encourage and enable active long-term forest management.⁷⁴

The Forest Land Enhancement Program (FLEP),⁷⁵ also authorized by the 2002 Farm Bill, is an additional source of educational and technical resources, and provides millions of dollars in cost-share assistance for active management in private forests.⁷⁶ FLEP is a voluntary program, and each participating state develops a state priority plan that describes which categories of projects will be available to landowners for cost-share funding. FLEP regulations confirm that invasive species control projects are eligible for cost-share assistance.⁷⁷

Department of Interior Cooperative Conservation Programs

The Department of Interior also sponsors several cost-share and technical assistance programs that can be used to fund invasive species control on private lands.⁷⁸ The Department of the Interior and Related Agencies Appropriations Act of 2004 (Pub. L. 108-108) included \$30 million for conservation efforts under the Landowner Incentive Program (LIP), which provides technical and financial assistance to protect and restore habitats on private lands. The U.S. Fish and Wildlife Service's Challenge Cost Share Program matches federal funds with non-federal funds and in-kind services to cost-share projects supporting fish and wildlife conservation both on and off USFWS lands.⁷⁹ The USFWS Partners for Fish and Wildlife program offers technical and financial assistance directly to private landowners that volunteer to restore wetlands and other fish and wildlife habitats on their land.⁸⁰

STRATEGIC PLANNING AND COORDINATION

Because the framework of laws relating to invasive species is so fragmented, federal agencies often take action against invasives with little information about the actions of other agencies. The lack of information results in incomplete coverage and inefficient uses of federal resources. The first step in combating the communication gaps and assembling a coordinated response is authorizing interagency cooperation, especially between federal and state governments. A handful of laws have taken steps in this direction. For example, both the Plant Protection Act and Animal Health Protection Act authorize the Secretary of Agriculture to cooperate with other federal, state and local entities and persons in order to carry out the goals of the Acts.⁸¹ Section 15 of the Federal Noxious Weed Act calls for cooperation with other state and federal agencies to ensure that control,

research, and educational efforts associated with federal, state, and locally designated noxious weeds are properly coordinated.⁸² The Act also provides for federal cost-share assistance to state and local agencies to develop noxious weed management programs.⁸³ The Carlson Foley Act of 1968 (P.L. 90-583) directs federal agencies to permit state governments to intervene on federal lands to destroy noxious plants and provides reimbursement.⁸⁴ Similar laws and directives that attempt to coordinate efforts exist for other individual federal departments and agencies.⁸⁵

Executive Order 13112

Recently, the government has taken another step in the direction of greater coordination. In 1999, President Bill Clinton issued an Executive Order on invasive species,⁸⁶ which updated and supplanted an earlier Order from President Jimmy Carter.⁸⁷ The order contains some important policy directives for federal agencies. The decree directs federal agencies:

- 1) To use the full extent of their authority to prevent, control, monitor, and research invasive species,⁸⁸
- 2) Not to authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species, unless the agency can demonstrate that the benefits “clearly outweigh the potential harm caused by invasive species” and all measures are taken to minimize the risk of such harm;⁸⁹ and
- 3) To provide for restoration of native species and habitat conditions in ecosystems that have been invaded.⁹⁰

The order also establishes an interagency **National Invasive Species Council (NISC)** to “see that the Federal agency activities concerning invasive species are coordinated, complementary, cost-efficient, and effective.”⁹¹ NISC is specifically directed to:

- 1) Facilitate development of a coordinated network among Federal agencies to document, evaluate, and monitor impacts from invasive species on the economy, the environment, and human health;⁹²
- 2) Facilitate establishment of a coordinated interagency information sharing system, including information on distribution of species, management techniques, and laws and programs for management, research, and education;⁹³ and
- 3) Prepare a National Invasive Species Management Plan to detail and recommend performance oriented goals and objectives and specific measures of success for Federal agency efforts concerning invasive species.⁹⁴

Executive Order 13112 contains ambitious language and goals, but its actual effectiveness in coordinating a federal response to invasive species is questionable. Most of the goals from the 2001 NISC Management Plan have not yet been met.⁹⁵ In addition, the extent to which federal agencies can be forced to comply with the Order’s policy directives is unclear.⁹⁶ Some have suggested that codifying the Executive Order would clarify agency responsibilities and increase the likelihood of substantive policy action.⁹⁷ Others maintain that the National Invasive Species Council does not have the resources to make a meaningful difference, and that a “National Center for Biological Invasions,” perhaps modeled after the Center for Disease Control in Atlanta, is needed to effectively make a difference.⁹⁸ In any event, compliance with the Executive Order seems to demand a more proactive and creative federal response to invasives. This may require agencies to rethink their current approaches and find new ways to use their existing authorities in addressing invasive species threats.⁹⁹

Federal Consultation Requirements

A number of federal laws require federal agencies to consult with the Fish and Wildlife Service or the

National Marine Fisheries Service (NMFS) before undertaking or approving activities that may affect natural resources. This consultation process serves as an additional mechanism for coordinating federal agency responses to invasive species and ensuring that the directives of Executive Order 13112 are met. For example, Section 7 of the Endangered Species Act (ESA) requires consultation to ensure that federal actions are not likely to “jeopardize the continued existence” of endangered or threatened species or damage their habitat.¹⁰⁰ The Fish and Wildlife Coordination Act (16 U.S.C. §§ 661-664) requires that wildlife conservation (including “minimizing damages from overabundant species”) receive “equal consideration” and be coordinated with other features of water-resource development programs.¹⁰¹ It requires federal agencies (most often the U.S. Army Corps of Engineers) to consult with the Fish and Wildlife Service before taking or authorizing any actions that will impound, divert, or otherwise control or modify streams or other water resources.¹⁰² The Magnuson-Stevens Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires federal agencies to consult with NMFS on all activities that may adversely affect “essential fish habitat.”¹⁰³ These consultations are typically folded into the National Environmental Policy Act process, and often include recommendations regarding the removal and management of invasive species to improve habitat and benefit threatened wildlife.

With the exception of ESA consultations, the Service’s recommendations are only advisory and do not bind the agencies. However, these requirements do build awareness of the impact of federal actions on invasive species and, when combined with the policy directives in the Executive Order, build a strong case for agency accountability with respect to federal actions likely to promote the introduction or spread of invasives.

International Agreements and Authorities

Several international treaties and conventions have provisions that either directly or indirectly relate to

invasive species, including the International Plant Protection Convention (IPPC), Convention on Prevention of Diseases in Livestock (U.S.-Mexico); Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES); Convention for the Protection of Migratory Birds (U.S.-Canada); and Convention for the Protection of Migratory Birds and Game Animals (U.S.-Mexico).

The spread of aquatic nuisance species carried in ballast water is also the subject of a new convention adopted by the International Maritime Organization, which calls not only for ballast water exchange, but also ballast water treatment technology for all ships.¹⁰⁴ The convention will enter into force twelve months after ratification by thirty States, representing thirty-five percent of world merchant shipping tonnage. Under the treaty, the United States can take domestic actions that are more stringent than those outlined in the convention.

International trade agreements, specifically the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) impose requirements that may limit domestic policy choices on invasive species. The SPS Agreement requires states to articulate and justify quarantine measures in terms of scientific risk and requires that trade measures be “not more trade restrictive than required to achieve their appropriate level of... protection.”¹⁰⁵ Since rigorous scientific methods for determining the invasiveness of exotic species have not yet been developed, domestic bans on imports of foreign species could be open to challenge under the World Trade Organization (WTO).

In 2003, the European Community initiated a WTO challenge to Australia’s aggressive quarantine regime.¹⁰⁶ The WTO Dispute Settlement Body appointed a panel to consider the matter on November 7, 2003. The ultimate resolution of this case will determine, to a large extent, the precise limits imposed by the WTO regime to national measures aimed at preventing introductions of harmful invasive species.¹⁰⁷

RECAP AND PENDING LEGISLATION

In sum, the federal framework for safeguarding the country from new introductions of invasive species is piecemeal, inconsistent, and replete with gaps. The laws cover only a fraction of the types of species that may become invasive. Furthermore, federal agencies are often slow to regulate potentially harmful members of the categories of species that are covered. This is due, in part, to the lack of pre-screening requirements and the reliance on outdated “dirty listing” approaches. Congress’s failure to provide adequate resources for inspections and law enforcement weakens the effectiveness of the laws on the books, and the lack of “rapid response” and dedicated management funding and authority exacerbates the impact of

species that slip through our porous border defenses.

The 1999 Executive Order is intended to build a more coordinated federal response to these problems. However, a complete solution will require a legislative response. An increasing number of invasive species-related bills are being debated in Congress, including proposals to reauthorize and expand the National Invasive Species Act, codify the Executive Order on Invasive Species, establish grant programs for state assessments and control, and fund emergency rapid response programs. This demonstrates a growing congressional awareness of the seriousness of invasive species impacts on the nation’s economy and environment and the inadequacy of the current federal response. Some pending invasives bills in the 108th Congress are summarized in Table 4.

¹ Rivers and Harbors Act (RHA) of 1899, Ch. 425.

² Miller devotes an entire chapter to this “paradox” in the book *Harmful Invasive Species*, Chapter 1, note 7, *supra*.

³ 18 U.S.C. § 42(a)(1).

⁴ These regulations are found at 50 C.F.R. Part 16.

⁵ 16 U.S.C. § 3372(a).

⁶ FWS also regulates importation and movement of restricted wildlife and wildlife products under the Convention on International Trade in Endangered Species (CITES), the Endangered Species Act, the Marine Mammal Protection Act, and other federal wildlife laws.

⁷ 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.*

⁸ *Id.*

⁹ The current list of injurious wildlife species is found at 50 C.F.R. § 16.11-16.15. While imports of unlisted species are allowed, Lacey Act regulations do prohibit the release into the wild of all covered animal species (wild mammals, birds, fish, amphibians, and reptiles). See FWS Injurious Wildlife regulations at 50 C.F.R. Part 16.

¹⁰ A dirty list imposes restrictions only on the listed species, leaving all unlisted species free from regulation. This approach assigns to regulators the burden of determining whether a species is harmful. In contrast, a “clean list” identifies species approved for import, introduction, or release. This approach generally places the burden on the regulated community to prove that the new species will not pose an economic or environmental threat. There are several other possible approaches that blend elements of a pure dirty and clean listing approach. See *Halting the Invasion*, Chapter 1, note 11, *supra*, or *Making a List: Prevention Strategies for Invasive Plants in the Great Lakes States* (2004) for more details.

¹¹ 16 U.S.C. § 3378.

¹² 16 U.S.C. § 3372(a)(2).

¹³ The Department of Agriculture’s responsibility for invasive plants and plant pests can be traced through eleven separate Acts of Congress, beginning with the Plant Quarantine Act of 1912.

¹⁴ 7 U.S.C. § 7712. Authority to take remedial actions extends to the progeny of restricted products as well as the facilities and the means of conveyance used in the movement of these products. 7 U.S.C. § 7714(a).

¹⁵ Plant pests include “any living stage of any insects, mites, nematodes, slugs, snails, protozoa, or other invertebrate animals, bacteria, fungi, other parasitic plants or reproductive parts thereof, viruses, or any organisms similar to or allied with any of the foregoing, or any infectious substances which can directly or indirectly injure or cause disease or damage in any plants or parts thereof, or any processed, manufactured, or other products of plants.” 7 C.F.R. § 330.100. Federal Plant Pest regulations are found at 7 C.F.R. Part 330.

¹⁶ Federal noxious weeds are listed at 7 C.F.R. § 360.200. See generally 7 C.F.R. Part 360 (Noxious Weed Regulations).

¹⁷ See, e.g., 7 C.F.R. Part 319 (Foreign Quarantine Notices), 7 C.F.R. § 330.330 (Soil From Foreign Counties), and 7 C.F.R. § 319.56 (Fruits and Vegetables).

¹⁸ PPA Sec. 414 (7 U.S.C. § 7714); see 7 C.F.R. § 330.106.

¹⁹ 7 U.S.C. § 7712(f). The list is located at 7 C.F.R. § 360.200.

²⁰ See 7 U.S.C. § 7702. “Noxious weeds” are “any plant or plant product that can directly or indirectly injure or cause damage to crops (including nursery stock or plant products), livestock, poultry, or other interests of agriculture, irrigation, navigation, the natural resources of the United States, the public health, or the environment.” “Plant pests” are defined as “any living stage of any of the following that can directly or indirectly cause damage to, or cause disease in any plant or plant product: A protozoan, nonhuman animal, parasitic plant, bacterium, fungus, virus or viroid, infectious agent or other pathogen, or any article similar to or allied with any of the preceding.”

²¹ 7 U.S.C. § 7712(c). 7 C.F.R. § 360.300 requires a permit for any movement

of federal noxious weeds “into or through the United States, or interstate.”

²² 7 U.S.C. § 7715.

²³ 7 U.S.C. § 7714-15. *See also* 7 C.F.R. § 330.106 (describing authorized emergency measures when international or interstate inspections reveal new plant pests).

²⁴ *See* PPA Sec. 436 (7 U.S.C. § 7756).

²⁵ *Id.*

²⁶ *See* 7 U.S.C. §§ 8303-8308.

²⁷ A new quarantine facility was recently completed at the Miami Animal Import Center. It replaces the high-security Harry S. Truman Animal Import Center (HSTAIC) in Key West that closed its doors in 1998 after nearly 20 years of service.

²⁸ Livestock is defined as “all farm-raised animals,” including fish. 7 U.S.C. § 8302(10).

²⁹ 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).

³⁰ 16 U.S.C. § 4721-24.

³¹ *See* 16 U.S.C. § 4711.

³² *See* 68 Fed. Reg. 44691 (July 30, 2003).

³³ *See Invasive Species: Clearer Focus and Greater Commitment Needed to Effectively Manage the Problem*, U.S. General Accounting Office (GAO), Report 03-1 (2002).

³⁴ Senate and House versions of the National Aquatic Invasive Species Act of 2003 (NAISA) were introduced on March 5, 2003. H.R. 1080 is sponsored by Rep. Wayne Gilchrest (MD). S. 525 is sponsored by Senator Carl Levin (MI).

³⁵ APHIS’s Biotechnology Regulatory Service (BRS) regulates the import, movement, and field testing of genetically engineered plants under the agency’s general plant pest authorities. In January 2004, USDA announced plans to strengthen and expand APHIS’s regulatory scope beyond GE organisms that may pose a plant pest risk to those that may pose a risk to natural areas or could be used as biological control agents. *See* USDA Press Release No. 0033.04, *USDA Announces First Steps To Update Biotechnology Regulations* (Jan. 22, 2004). GE animals are regulated by the U.S. Food and Drug Administration (FDA) under the New Animal Drug provisions of the Federal Food, Drug, and Cosmetic Act (FFDCA). *See Regulatory Issues in Agricultural Biotechnology*, FDA Veterinarian Newsletter, Volume XIII, No. I (1998).

³⁶ For example, NOAA regulations for the Florida Keys National Marine Sanctuary specifically prohibit the release of exotic species into the sanctuary. *See* 15 C.F.R. § 922.163.

³⁷ 7 U.S.C. § 7717.

³⁸ 7 U.S.C. § 7714(c).

³⁹ 16 U.S.C. § 4722(e).

⁴⁰ 16 U.S.C. § 4724.

⁴¹ 7 U.S.C. § 426.

⁴² *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.

⁴³ As currently organized, APHIS Wildlife Services is not a regulatory agency.

⁴⁴ Phone conversation with Bill Wallace, Associate Deputy Administrator,

Policy and Program Development, APHIS (April 30, 2004).

⁴⁵ For example, the National Park Service’s interpretation of FLPMA and the Park Service Organic Act provided the basis for development of the *NPS Strategic Plan for Managing Invasive Non-Native Plants on National Park Service Lands* (1997). Invasive species are also addressed through individual park Resource Management Plans. The U.S. Forest Service’s noxious weeds policy is set forth in USDA Department Regulation 9500-10 and Forest Service Manual 2080. This policy calls for an integrated weed management approach to prevent the introduction of new invaders, conduct early treatment of new infestations, and contain and control established infestations on forest system lands.

⁴⁶ One federal law actually creates affirmative obligations for federal agencies. Sec. 15 of the Federal Noxious Weed Act (7 U.S.C. § 2814)—the only section of the 1974 Act left in effect after passage of the Plant Protection Act—requires federal land management agencies to establish and fund undesirable plant control programs on lands under their jurisdiction. However, this requirement only applies if similar programs are being implemented generally on state or private lands in the same area.

⁴⁷ Water Resources Development Acts (WRDAs) also provide overall direction and guidance to the Corps for the hundreds of water resources projects it undertakes. Each Act includes authorizations, deauthorizations, and modifications to individual projects as well as provisions of general applicability.

⁴⁸ Rivers and Harbors Act of June 13, 1902, Ch. 1079.

⁴⁹ Rivers and Harbors Act of July 3, 1958 (Public Law 85-500), Section 104. The project was further amended in 1965, Public Law 89-298, Section 302, and again several times in response to increasing problems and needs. Corps of Engineers Aquatic Plant Control authority is now codified at 33 U.S.C. 610 and regulations appear at 33 C.F.R. Part 273.

⁵⁰ Section 306 of the Water Resources Development Act (WRDA) of 1990 directs the Secretary to “include environmental protection as one of the primary mission of the Corps of Engineers in planning, designing, constructing, operating, and maintaining water resources projects.” Pub. L. 101-640 (codified at 33 U.S.C. § 2316). *See* U.S. Army Corps of Engineers Engineer Regulation (ER) 1165-2-501, *Civil Works Ecosystem Restoration Policy*, and Engineer Policy (EP) 1165-2-502, *Ecosystem Restoration-Supporting Policy Information*.

⁵¹ The “Ecosystem Approach” is the Army Corps’ fundamental philosophy behind ecosystem restoration. It is described in these excerpts from the Corps’ policy document on ecosystem restoration, EP 1165-2-502 (1999).

Ecosystem Restoration. Ecosystem Restoration is a primary mission of the Civil Works program. Civil Works ecosystem restoration initiatives attempt to accomplish a return of natural areas or ecosystems to a close approximation of their conditions prior to disturbance, or to less degraded, more natural conditions. In some instances a return to pre-disturbance conditions may not be feasible. However, partial restoration may be possible, with significant and valuable improvements made to degraded ecological resources. The needs for improving or re-establishing both the structural components and the functions of the natural area should be examined. The goal is to partially or fully reestablish the attributes of a naturalistic, functioning, and self-regulating system.

Ecosystem Approach. Ecosystem restoration in the Civil Works program uses a systems view in assessing and addressing restoration needs and opportunities. Recognition of the interconnectedness and dynamics of natural systems, along with human activities in the landscape, is integral. The philosophy behind ecosystem restoration promotes consideration of the effects of decisions over the long term and incorporates the ecosystem approach. The goal of the ecosystem approach is to restore and sustain the health, productivity, and biological diversity of ecosystems and the

overall quality of life through a natural resources management approach that is fully integrated with social and economic goals. The ecosystem approach recognizes and seeks to address the problems of habitat fragmentation and the piecemeal restoration and mitigation previously applied in addressing the Nation's natural resources. Civil Works studies, projects and activities to meet ecological resource restoration objectives will be conducted using an ecosystem approach, the elements of which have been incorporated into this pamphlet.

In recognition of the principles of the ecosystem approach, the Corps, along with thirteen other Federal agencies, signed an MOU "To Foster the Ecosystems Approach" in December of 1995. The MOU states it is "the policy of the Federal Government to...provide leadership in and cooperate with activities that foster the ecosystem approach to natural resource management, protection and assistance. Federal agencies will use their authorities in a manner that facilitates an ecosystems approach."

⁵² U.S. Army Corps of Engineers Policy Digest, EP 1165-2-1, Ch. 19 (1999).

⁵³ See Ch. 19 of the U.S. Army Corps of Engineers "Policy Digest" (Engineer Pamphlet (EP) 1165-2-1), Ch. 19 (1999).

⁵⁴ Section 216 authorizes the Secretary to "review the operation of projects ... and to report thereon to Congress with recommendations on the advisability of modifying the structures or their operation, and for improving the quality of the environment in the overall public interest." 84 Stat. 1830.

⁵⁵ There are two primary CAP programs, known by the section number of their originating authority:

Section 1135 Projects, *Project Modification for the Improvement of the Environment*, authorize the Secretary to "undertake measures for restoration of environmental quality" if the construction or operation of an Corps of Engineers water resources project "has contributed to the degradation of the quality of the environment" and such modifications "will improve the quality of the environment in the public interest." Sec. 1135 of WRDA 1986, Pub. L. 99-662 (33 U.S.C. § 2309a).

Section 206 Projects, *Aquatic Ecosystem Restoration*, are open to all "aquatic ecosystem restoration and protection" projects that, in the judgment of the Secretary, will improve the quality of the environment, are in the public interest, and are cost-effective. Sec. 206 of WRDA 1996, Pub. L. 104-303 (33 U.S.C. § 2330).

⁵⁶ The Corps discusses CERP's adaptive management program in the CERP Programmatic Regulations Final Rule. 68 Fed. Reg. 64200 at 64213 (Nov. 12, 2003). The report of the Senate Committee on Environment and Public Works on WRDA 2000 (Senate Report No. 106-362) contains a discussion of that committee's expectations with respect to adaptive management: The Committee does not expect rigid adherence to the Plan as it was submitted to Congress. This result would be inconsistent with the adaptive management principles in the Plan. Restoration of the Everglades is the goal, not adherence to the modeling on which the April 1999 Plan was based. Instead, the committee expects that the agencies responsible for project implementation report formulation and Plan implementation will seek continuous improvement of the Plan based upon new information, improved modeling, new technology and changed circumstances. 68 Fed. Reg. at 64213.

⁵⁷ See 33 C.F.R. § 385.20.

⁵⁸ See CERP Programmatic Regulations, Final Rule, 68 Fed. Reg. 64200, 64213. (Nov. 12, 2003).

⁵⁹ The Corps is authorized to implement modifications to existing CERP projects that "will produce a substantial benefit to the restoration, preservation and protection of the South Florida ecosystem." See Sec.

601(c)(1) of WRDA 2000. These modifications may be implemented without separate Congressional authorization as long as each costs less than \$25 million and the total cost of all modifications carried out under this authority does not exceed \$206 million. See *id.* at § 601(c)(3).

⁶⁰ For example, the Corps is currently constructing an electrified barrier in the Chicago Sanitary and Ship Canal to prevent invasive bighead carp from entering Lake Michigan. See Dan Egan, *Law no barrier to invasive bighead carp*, Milwaukee Journal Sentinel (May 1, 2004).

⁶¹ RECOVER is instructed to "assist Project Delivery Teams in ensuring that project design and performance is fully linked to the goals and purposes of the Plan." *Id.* at § 385.20(e)(1).

⁶² The Corps would need to prepare a Project Implementation Report and get Congressional authorization before implementing such stand-alone invasive species projects. See Sec. 601(d) of WRDA 2000, Authorization of Future Projects.

⁶³ The Corps used its critical restoration project authority under WRDA 1996 to design and implement CERP Project 95, entitled *Melaleuca Eradication and Other Exotic Plants*. Project documents for this project are available at http://www.evergladesplan.org/pm/projects/proj_95_melaleuca.cfm#desc. Critical restoration authority, which expired in 1999, allowed the Corps to implement restoration projects without separate Congressional approval if the Secretary determined they would produce "independent, immediate, and substantial restoration, preservation, and protection benefits." See WRDA 1996 § 528(b)(3).

⁶⁴ See 68 Fed. Reg. at 64214. This report must be transmitted to Congress for approval before recommended modifications may take effect.

⁶⁵ ARS acts as USDA's principal in-house research agency under authority of the Act of 1946, P.L. 79-733, as amended (7 U.S.C. §§ 1621 *et seq.*) and the National Agricultural Research, Extension, and Teaching Policy Act of 1977, P.L. 95-113, Title XIV as amended (7 U.S.C. §§ 3101 *et seq.*).

⁶⁶ See, e.g., Sections 1102 and 1202 of NISA, Pub. L. 104-332 (1996). Authorizations for these programs expired in 2002 and are awaiting reauthorization in Congress.

⁶⁷ Wildlife Services maintains a National Wildlife Research Center in Fort Collins, CO.

⁶⁸ The USGS Biological Resources Discipline has seventeen science and technology centers located throughout the United States focusing on a range of different invasive species. See <http://biology.usgs.gov/invasive/research.htm>.

⁶⁹ NOAA's National Center for Research on Aquatic Invasive Species is housed at the Great Lakes Environmental Research Laboratory in Ann Arbor, Michigan.

⁷⁰ See 7 C.F.R. Part 601, NRCS, Functions assigned.

⁷¹ See EQIP Final Rule, 68 Fed. Reg. 32337 (May 30, 2003). EQIP regulations are codified at 7 CFR Part 1466.

⁷² See WRP Final Rule, 67 Fed. Reg. 39254 (June 7, 2002). WRP regulations are codified at 7 CFR Part 1467.

⁷³ See WHIP Final Rule, 67 Fed. Reg. 48353 (July 24, 2002). WHIP regulations are codified at 7 CFR Part 636.

⁷⁴ See Forest Stewardship Program website at <http://www.fs.fed.us/spf/coop/programs/loa/fsp.shtml>.

⁷⁵ FLEP was authorized in the Farm Security and Rural Investment Act of 2002 (the 2002 Farm Bill), which amended the Cooperative Forestry Assistance Act (16 U.S.C. 2101, *et seq.*). Forest Service regulations implementing FLEP are found at 36 C.F.R. Part 230, Subpart C. FLEP replaces the former Forestry Incentives Program (FIP) and Stewardship Incentive Program (SIP), which were repealed by the 2002 Farm Bill.

⁷⁶ \$100 million of Commodity Credit Corporation funds are authorized for program years 2002-2007, including \$20 million in its inaugural year (FY 2003). See Forest Land Enhancement Program, Interim Final Rule, 68 Fed. Reg. 34309 (June 9, 2003).

⁷⁷ See 36 C.F.R. § 230.40, Eligible practices for cost-share assistance.

⁷⁸ Overall, the 2005 budget includes \$507.3 million for the Interior Department's cooperative conservation programs, more than a forty-three percent increase for these programs since 2001.

⁷⁹ The Challenge Cost Share Program is authorized in part by the Fish and Wildlife Coordination Act, Pub. L. 85-624 (1958) (16 U.S.C. § 661-666c) which authorizes the Secretary to cooperate with federal, state, public and private agencies and organizations regarding the protection and conservation of wildlife. Distinct authority for the Service to fund a challenge cost share program has been cited annually in the House Report that accompanies the annual Appropriations Legislation. Explicit funding has been authorized by Congress for this purpose since 1988. Funds available through the Challenge Cost Share Program require at least a fifty percent match from project partners. See USFWS Policy 055-FW-6, Challenge Cost Share (<http://policy.fws.gov/055fw6.html>).

⁸⁰ This program is authorized by the Partnerships for Wildlife Act, Pub. L. 102-587 (1992) (16 U.S.C. § 3741 *et seq.*). Normally, FWS and the landowner each pay half of the project costs, but the percentage is flexible. Estimated total program funding for FY 2004 is \$32,000,000, with an award ceiling of \$25,000 per project. See FWS Policy 640-FW-1 Partners for Fish and Wildlife Program (<http://policy.fws.gov/640fw1.html>).

⁸¹ See 7 U.S.C. § 7751 (PPA) and 7 U.S.C. § 8310 (AHPA).

⁸² See 7 U.S.C. § 2814(c)(1), (f)(1).

⁸³ 7 U.S.C. § 2814(f)(3).

⁸⁴ 43 U.S.C. §§ 1241-1243.

⁸⁵ For example, the Fish and Wildlife Coordination Act authorizes the Secretary of Interior to "provide assistance to, and cooperate with, Federal, State, and public or private agencies and organizations in...minimizing damages from overabundant species" and for other purposes. See 16 U.S.C. § 661. This congressional policy is supported by DOI regulations encouraging cooperative agreements for the protection of fish and wildlife. See 43 C.F.R. § 24.6.

⁸⁶ Exec. Order No. 13112, 64 Fed. Reg. 25 (Feb. 8, 1999).

⁸⁷ Exec. Order No. 11987, 3 C.F.R. § 116 (1997). Carter's order directed federal agencies to use the full extent of their authorities to 1) "restrict the introduction of exotic species into natural ecosystems on lands and waters which they own, lease, or hold for purposes of administration;" and 2) to the extent that they have been authorized by statute to restrict the importation of exotic species, to "restrict the introduction of exotic species into any natural ecosystems of the United States."

⁸⁸ See Exec. Order 13112 § 2(a)(2). This responsibility is "subject to the availability of appropriations and within Administration budgetary limits." *Id.*

⁸⁹ Exec. Order 13112 § 2(a)(3).

⁹⁰ *Id.* at § 2(a)(2)(iv).

⁹¹ *Id.* at § 4(a).

⁹² *Id.* at § 4(e).

⁹³ *Id.* at § 4(f).

⁹⁴ *Id.* at § 5. The first edition of the NISC plan was released in October 2001.

⁹⁵ An October 2002 General Accounting Office (GAO) report criticized the NISC Plan as "lack[ing] a clear long-term outcome and quantifiable performance criteria against which to evaluate the overall success of the plan..." U.S. GAO, *Invasive Species: Clearer Focus and Greater Commitment Needed to Effectively Manage the Problem* (2002).

⁹⁶ Section 6(a) states that the Order is "intended only to improve the internal management of the executive branch" and is not intended to create any enforceable substantive or procedural rights. Executive Order 13112 § 6(a).

⁹⁷ Bills have been introduced in both the Senate and the House to codify the Executive Order and authorize the National Invasive Species Council as an independent executive branch entity. See H.R. 266 and S. 536 (The National Invasive Species Council Act).

⁹⁸ See Schmitz and Simberloff, *Needed: A National Center for Biological*

Invasions, Issues in Science and Technology (summer 2001).

⁹⁹ One interesting prospect is EPA's potential use of the Clean Water Act to regulate invasive aquatic species as "biological pollutants." The Ocean Conservancy is currently testing this theory in federal court, by seeking to compel EPA to identify and ensure the cleanup of California waters contaminated with invasive species. The lawsuit, brought in the Northern District of California, contends that EPA violated the CWA by failing to require California to identify waters impaired by invasive species such as the *Caulerpa taxifolia* algae and Chinese mitten crab on its 303(d) list of "impaired waters." See Ocean Conservancy Press Release, dated April 5, 2004 (available at <http://www.oceanconservancy.org/dynamic/press/releases/archive.htm?id=040410>). Note, however, that a TMDL for exotic species has already been set for San Francisco Bay. See California Regional Water Quality Control Board, *Prevention of Exotic Species Introductions to the San Francisco Bay Estuary: A Total Maximum Daily Load Report to U.S. EPA*, (May 2000) (available at <http://www.swrcb.ca.gov/rwqcb2/download/Tmdl.pdf>).

¹⁰⁰ See 16 U.S.C. § 1536.

¹⁰¹ 16 U.S.C. § 661.

¹⁰² 16 U.S.C. § 662(a). 43 C.F.R. 24.1-24.7.

¹⁰³ Sec. 305(b) of the Magnuson-Stevens Act (16 U.S.C. 1855(b)). See Department of Commerce's EFH consultation regulations (50 CFR 600.905-930). Essential fish habitat includes those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. See 50 C.F.R. § 600.10.

¹⁰⁴ See *International Convention for the Control and Management of Ships' Ballast Water and Sediments*, International Maritime Organization (IMO) (2003).

¹⁰⁵ SPS Agreement Art. 5.6. Quarantines based on international standards developed through international organizations such as the International Plant Protection Convention (IPPC) or the Office International des Epizooties (OIE) (the world organization for animal health) are presumed to be consistent with the SPS Agreement.

¹⁰⁶ Australia's regulatory system for importing plants and animals are among the most aggressive in the world. It is close to a pure "clean list" approach, where importers must prove the safety of their products before they are approved for import. See Australia-Quarantine Regime for Imports, WT/DS287/7.

¹⁰⁷ For an extended discussion of these issues, see Marc L. Miller, *NIS, WTO, SPS, WIR: Does the WTO Substantially Limit the Ability of Countries to Regulate Harmful Non-Indigenous Species?*, 17 Emory International L.J. 100 (2003).

CHAPTER 3: ECOSYSTEM RESTORATION AUTHORITIES AND THE STATE ROLE

The federal authorities discussed in Chapter 2 are only a small part of the overall landscape of invasive species management in Florida. Many tools to combat Florida's invasive species reside either exclusively in state rules or in the federal/state amalgam of South Florida Ecosystem Restoration authorities. The State of Florida has a long history with invasives, and has developed a relatively robust (though unwieldy) collection of policies and programs. Jurisdiction over different aspects of invasive species regulation and management is divided between nine state agencies, each of which is influenced by distinct legislative directions and historical orientations.¹ Many municipal and county governments have joined the fray, attempting to control invasions of harmful species through land-use regulations and removal programs.² Economic interests, such as the nursery industry and pet trade, exert considerable influence over state legislative and regulatory policy. Nonprofit organizations, citizen groups, and the federal government's interests in Everglades National Park and Florida's other unique ecological resources also contribute to the milieu.

This section attempts to tie together the various authorities and programs, and provides a snapshot of the overall structure of invasive species efforts in Florida. The examination begins with an overview of the Ecosystem Restoration programs that overlay the traditional federal and state authorities in South Florida. The State's principal invasive species policies and programs are described next and placed in context with the federal government's role. The section maintains a bird's-eye view of the landscape and does not delve into details; this

perspective highlights the extent of interagency efforts in Florida and creates a more coherent backdrop for identifying gaps and developing recommendations.

SOUTH FLORIDA ECOSYSTEM RESTORATION AUTHORITIES

By the late 1960s, the state and federal governments began taking steps to counter the relentless loss of wetlands to agricultural and urban development, the introduction of nutrients and other contaminants into pristine ecosystems, and the corresponding loss of native species in South Florida. This movement began slowly, but picked up momentum as concerned citizens and policymakers realized that only a full commitment could save the Everglades. New enactments and protections augmented previous ones in an ever-increasing latticework of federal and state programs.

Today, nearly all federal and state policy decisions affecting Florida are influenced in some way by ecosystem restoration concerns. Invasive species management is no exception, and in some ways it is central to the entire endeavor. Therefore, a basic grasp of the key events and authorities is essential to a full understanding of regional invasive species policy. An overview of the evolutionary nature of these ecosystem restoration authorities and their relation to invasive species management in Florida is encapsulated in Table 5.

STATE AGENCIES AND AUTHORITIES

The Florida Department of Environmental Protection (FDEP), the Florida Department of Agriculture and Consumer Services (FDACS), the Florida Fish and Wildlife Conservation Commission (FWC), and several state water management districts implement policies and programs to minimize and control the impacts of invasives on Florida's economy and environment. FDEP, FDACS, and FWC each regulate private conduct as well as businesses that depend in part on exotic species, such as the state's nursery industry and pet trade. FDEP and the state water management districts coordinate and fund programs to control and manage invasive vegetation in the state's public water bodies and conservation lands.³ The South Florida Water Management District (SFWMD) also has a large role in controlling invasive species on lands acquired for South Florida ecosystem restoration. In 2001, at the request of the governor, an interagency Invasive Species Working Group (ISWG) was created to develop and implement a Statewide Invasive Species Strategic Plan.⁴ Several local governments administer their own invasive species prohibitions and control requirements. These local programs offer a more regional response to invasive species management and can be crafted to account for unique local conditions and challenges.

Florida Department of Environmental Protection (FDEP)

The Florida Department of Environmental Protection is the lead agency for the control and regulation of aquatic plants in Florida.⁵ The agency administers permit programs for importation, transportation, cultivation, sale, possession, and control of aquatic plants in the state.⁶ Recently, the Florida Legislature charged FDEP with the task of creating a program to bring invasive upland plant species under maintenance control.⁷ FDEP's Bureau of Invasive Plant Management (BIPM) is now responsible for coordinating and funding two

statewide invasive species control programs—one focused on aquatic vegetation in public waters and the other on terrestrial invasive plants on public conservation lands.

FDEP authorities relating to invasive species:

Florida Statutes (FS):

§ 369.20	Florida Aquatic Weed Control Act
§ 369.22	Non-indigenous aquatic plant control
§ 369.25	Aquatic plants; definitions; permits; powers of department; penalties
§ 369.251	Invasive non-native plants; prohibitions; study; removal; rules
§ 369.252	Invasive exotic plant control on public lands
§ 369.255	Green utility ordinances for funding greenspace management and exotic plant control

Florida Administrative Code (FAC):

Ch. 62C-20	Aquatic Plant Control Permits
Ch. 62C-52	Aquatic Plant Importation, Transportation, Non-nursery Cultivation, Possession, and Collection (Prohibited Aquatic Plant List at § 62C-52.011)
Ch. 62C-54	Funding for Aquatic Plant Management
Ch. 62D-2	Operation of Division Recreation Areas and Facilities

Florida Department of Agriculture and Consumer Services (FDACS)

The Florida Department of Agriculture and Consumer Services is responsible for the protection of Florida's agricultural industries, native plant life, and the public through the exclusion, detection, eradication and control of injurious plant and domestic animal pests and diseases.

FDACS is essentially the state counterpart to USDA APHIS; the two agencies are authorized to cooperate with each other to achieve their shared goals.⁸ Florida's vulnerability to plant pest invasions has led to several collaborative eradication efforts through the years.⁹

FDACS has historically focused on agricultural pests rather than natural areas invaders while FDEP focused on environmental risks. This has led to conflicts between the agencies in past years. However, recent rule changes confirm FDACS's

authority to regulate invasive plants that disrupt native plant communities as well as agricultural weeds.¹⁰ This may help streamline regulatory authority over invasive plants in the state.

FDACS authorities relating to invasive species:

Florida Statutes (FS):

- § 570.32 Division of Plant Industry; powers and duties
- § 570.36 Division of Animal Industry, power and duties
- § 570.235 Pest Exclusion Advisory Committee
- § 570.191 Agricultural Emergency Eradication Trust Fund
- Ch. 581: Plant Industry
 - § 581.032 Department; powers and duties
 - § 581.083 Introduction or release of plant pests, noxious weeds, or organisms affecting plant life
 - § 581.091 Noxious weeds and infected plants or regulated articles; sale or distribution; receipt; information to department; withholding information
 - § 581.145 Aquatic plant nursery registration; special permit requirements
- Ch. 585: Division of Animal Industry
 - § 585.08 General power of the department; rules.
 - § 585.145 Control of animal diseases
 - § 585.15 Dangerous transmissible disease or pest a public nuisance

Florida Administrative Code (FAC):

- Ch. 5A-16: Agricultural Vehicle Inspection
- Ch. 5B: Division of Plant Industry
 - Ch. 5B-2 Florida Nursery Stock and Certification Fee
 - Ch. 5B-3 Plant Quarantine and Certification Entry Requirements
 - Ch. 5B-57 Introduction or Release of Plant Pests, Noxious Weeds, Arthropods, and Biological Control Agents, (Noxious Weed List at § 5B-57.007)
 - Ch. 5B-59 Plant Pest Control
- Ch. 5C: Division of Animal Industry
 - Ch. 5C-3 Importation of Animals
- Ch. 5E-4: Seeds, (Noxious Weed Seed List at § 5E-4.003)

Florida Fish and Wildlife Conservation Commission (FWC)

In 1998, the citizens of Florida approved a Constitutional amendment merging the Florida Game and Freshwater Fish Commission, the Marine Fisheries Commission, the Florida Marine

Patrol, and the Florida Marine Research Institute. The newly created single agency has full constitutional authority for managing, protecting and conserving Florida’s freshwater and marine fisheries and its aquatic and terrestrial wildlife.¹¹ The mission of the FWC is: “To Manage Fish and Wildlife Resources for Their Long-term Well-being and the Benefit of People.”

As a constitutional agency, FWC has nearly unlimited authority over the fish and wildlife of the state, including power to regulate the importation, sale, and personal possession of non-native species. However, the agency’s multiple roles, including both conservation of Florida’s native species and promotion of recreational hunting and fishing, sometimes complicate its position on non-natives.¹² FWC has not aggressively used its authority to create lists of restricted species, but the agency recently announced the creation of a new invasive species division that could signal a new era of proactive invasive species policy.¹³

FWC authorities relating to invasive species:

Florida Statutes (FS):

- § 370.0811 Illegal importation or possession of non-indigenous marine plants and animals; rules and regulations
- § 372.121 Control and management of state game lands
- § 372.26 Imported Fish
- § 372.265 Regulation of Foreign Animals
- § 372.921 Exhibition or sale of wildlife
- § 372.922 Personal possession of wildlife
- § 372.98 Possession of nutria; license; inspection; penalty for violation

Florida Administrative Code (FAC):

- § 68A-1.002 Regulation of Wild Animal Life and Freshwater Aquatic Life in the State
- § 68A-4.005 Introduction of Foreign Wildlife or Freshwater Fish or Carriers of Disease
- Ch. 68A-6 Wildlife as Personal Pets
- § 68A-23.008 Introduction of Non-Native Aquatic Species in the Waters of the State

Florida Water Management Districts

Florida’s five regional water management districts are responsible for water resource management and environmental protection in their respective

Table 5: Milestones and Key Authorities in South Florida Ecosystem Restorationⁱ

1948	<p>Central and Southern Florida (C&SF) Project (<i>Federal</i>)</p> <ul style="list-style-type: none"> • Authorized by Section 203 of the Flood Control Act of 1948, 62 Stat. 1176. • Provided congressional authorization to U.S. Army Corps of Engineers to begin construction of a massive water delivery system for South Florida. The resulting canals and flood control structures compartmentalized the originally free-flowing Everglades and drained large areas of wetlands.
1972	<p>Florida Water Resources Actⁱⁱ (<i>Florida</i>)</p> <ul style="list-style-type: none"> • Established a fundamental water policy for Florida. Authorized the state water management districts to regulate the construction and operation of storm water management systems and consider water quality as one of their management objectives. <p>Florida Land Conservation Actⁱⁱⁱ (<i>Florida</i>)</p> <ul style="list-style-type: none"> • Authorized the issuance of bonds to purchase environmentally endangered and recreation lands.
1983	<p>Save Our Everglades Program (<i>Florida</i>)</p> <ul style="list-style-type: none"> • Initiated by Governor Bob Graham • Outlined a six-point plan for restoring and protecting the Everglades ecosystem. • Established the Kissimmee River Restoration Project and facilitated the congressional expansion of Big Cypress National Preserve in 1988 and Everglades National Park in 1989.
1987	<p>Surface Water Improvement and Management Act (SWIM)^{iv} (<i>Florida</i>)</p> <ul style="list-style-type: none"> • Required each Florida water management district to develop plans to clean up and preserve rivers, lakes, estuaries, and bays affected by water districts.
1988	<p>Federal Everglades Litigation (<i>Federal and Florida</i>)</p> <ul style="list-style-type: none"> • Challenged Florida’s Everglades SWIM plan; alleged that elevated nutrient levels from agricultural runoff were damaging federally owned or leased lands in the Everglades. • Mediated solution incorporated into Florida’s Everglades Forever Act, enacted in 1994.
1990	<p>Florida Preservation 2000 Act^v (<i>Florida</i>)</p> <ul style="list-style-type: none"> • Established a coordinated land acquisition program, at \$300 million per year for ten years, to protect the integrity of ecological systems and preserve Florida’s natural heritage. • Funded programs such as the Conservation and Recreation Lands program (CARL) and Save Our Rivers (SOR) programs, which have been responsible for the public acquisition and protection of more than 1.75 million acres of Florida lands. • Extended and essentially superseded by the Florida Forever Act in 1999.
1992	<p>Water Resources Development Act (WRDA) of 1992 (<i>Federal</i>)</p> <ul style="list-style-type: none"> • Authorized a comprehensive review of the C&SF Project known as the Restudy.^{vi} • Authorized the Kissimmee River Restoration Project.^{vii}
1993	<p>South FL Ecosystem Restoration Task Force (<i>Federal and Florida</i>)</p> <ul style="list-style-type: none"> • Created by an interagency agreement to coordinate the policies and programs for environmental restoration in South Florida.
1994	<p>Everglades Forever Act (<i>Florida</i>)</p> <ul style="list-style-type: none"> • Expanded and implemented Everglades water quality settlement agreement to reduce phosphorus loading and restore significant portions of the South Florida ecosystem through construction, research, and regulation.^{viii} <p>Governor’s Commission for a Sustainable South Florida (<i>Florida</i>)</p> <ul style="list-style-type: none"> • Forty-member Governor’s Commission appointed by Governor Lawton Chiles to develop restoration plans that will protect the economy and environment.

1996	<p>1996 Farm Bill (Federal)</p> <ul style="list-style-type: none"> • Provided \$200 million to conduct restoration activities in the Everglades ecosystem, including land acquisition, resource protection, and resource maintenance. <p>WRDA 1996, Sec. 528, Everglades and South Florida Ecosystem Restoration (Federal)</p> <ul style="list-style-type: none"> • Expanded the WRDA 1992 Restudy and directed the Secretary to “develop, as expeditiously as practicable, a proposed comprehensive plan for the purpose of restoring, preserving, and protecting the South Florida ecosystem.” • Authorized an additional \$75 million for critical restoration projects that would produce “independent, immediate, and substantial restoration, preservation, and protection benefits...”^{xix} • Formally established the South Florida Ecosystem Restoration Task Force (SFERTF) under federal law and expanded membership to tribal, state, and local governments.
1997	<p>Noxious Exotic Weed Task Team (Federal and Florida)</p> <ul style="list-style-type: none"> • Created by SFERTF as an interagency group and charged with developing a strategic plan to manage Florida’s invasive weeds.^x
1999	<p>South Florida Multi-Species Recovery Plan^{xi} (Federal)</p> <ul style="list-style-type: none"> • Prepared by the U.S. Fish and Wildlife Service. • Identified invasive species control as one of the most significant recovery actions for South Florida. <p>Comprehensive Everglades Restoration Plan (CERP) (Federal and Florida)</p> <ul style="list-style-type: none"> • Resulted from Corps of Engineers’ Restudy of the C&SF Project, submitted to Congress in 1999. • Outlines a framework of modifications and operational changes to the C&SF Project intended to restore and enhance the Everglades. <p>Florida Forever Act^{xiii} (Florida)</p> <ul style="list-style-type: none"> • Established the Florida Forever Trust Fund to improve and continue the coordinated land acquisition program initiated by the Florida Preservation 2000 Act; commits another \$300 million per year for ten years.^{xiii} • Authorized \$25 million in additional funds for invasive plant management efforts in Florida (eighty percent for aquatic plant control and twenty percent for upland plant control).
2000	<p>Florida Everglades Restoration Investment Act (Florida)</p> <ul style="list-style-type: none"> • Created a funding and accountability plan to help implement the CERP. • Committed an estimated \$2 billion in state funding to Everglades restoration over ten years. <p>WRDA 2000 (Federal)</p> <ul style="list-style-type: none"> • Authorized \$1.4 billion for the first round of CERP infrastructure projects.^{xiv} • Established a fifty percent federal cost share for implementation of CERP and for operation and maintenance. • Created water resource reservations for natural system needs.^{xv}
2002	<p>CERP Invasives Project (Federal and Florida)</p> <ul style="list-style-type: none"> • Authorized a multimillion-dollar project, to be implemented as part of CERP and sponsored locally by the South Florida Water Management District. • Funded improvements in the research, quarantine, and release of biological control agents in South Florida and authorized the preparation of a report to detail further opportunities for federal invasive species management in South Florida.
2003	<p>Everglades Forever Act Amendments (Florida)</p> <ul style="list-style-type: none"> • Clarifies controversial implementation of Everglades Forever Act water quality commitments.^{xvi} • Allows the use of “moderating provisions” in Everglades permits when existing technology is not available to achieve the ten ppb phosphorous water quality standard.^{xvii} <p>CERP Final Programmatic Regulations^{xviii}</p> <ul style="list-style-type: none"> • Promulgated by the Army Corps of Engineers to guide the implementation of CERP to “ensure that the goals and purposes of the Plan are achieved.”^{xix} <p>Florida Invasive Animal Task Team (FIATT)</p> <ul style="list-style-type: none"> • Established by SFERTF to investigate and strategically plan Florida’s response to invasive animal species.

TABLE 5 REFERENCES

ⁱ This condensed timeline draws from SFERTF’s overall strategy document, *Coordinating Success* (2002).

ⁱⁱ See FS Ch. 373, Title XXVIII.

ⁱⁱⁱ See FS Ch. 259.

^{iv} See FS Ch. 373.451.

^v See FS § 259.101.

^{vi} See section 309(l) of WRDA 1992 (106 Stat. 4844).

^{vii} See section 101 of WRDA 1992 (106 Stat. 4802).

^{viii} See FS § 373.4592 (Everglades improvement and management). The Everglades Forever Act declares “the intent of the Legislature to pursue comprehensive and innovative solutions to issues of water quality, water quantity, hydroperiod, and invasion of exotic species which face the Everglades ecosystem,” and it creates a number of programs to help achieve its goals, including:

1. The Everglades Construction Project to construct six large wetland areas (called stormwater treatment areas, or STAs) to reduce phosphorus loads in waters entering the conservation areas. See FS § 373.4592(4)(a). The STAs cover 47,000 acres between the Everglades Agricultural Area and the natural areas to the south.
2. An Everglades Best Management Practices Program designed to work with the agricultural industry to reduce the phosphorus load in waters moving southward from the Everglades Agricultural Area into the Stormwater Treatment Areas and the Everglades Protection Area. See FS § 373.4592(4)(f).
3. The development of a phosphorus criterion to meet water quality standards in the Everglades Protection Area. See FS § 373.4592(4)(e). The Florida Department of Environmental Protection’s (FDEP) proposed total phosphorus criterion of 10 ppb was approved in July 2003. The approved rule was immediately challenged.
4. The establishment of a biological monitoring network to survey for exotic species throughout the Everglades Protection Area and “coordinate with federal, state, or other governmental entities the control of continued expansion and the removal of these exotic species.” FS § 373.4592(4)(g).

^{ix} See section 528 of WRDA 1996 (110 Stat. 3767). In 1997, SFERTF, through a public process, developed a prioritized list of critical restoration projects to be transmitted to the U.S. Army Corps of Engineers. Invasive species control was at the top of the list.

^x See *Weeds Won’t Wait*, Chapter 1, note 8, *supra*.

^{xi} Available at <http://verobeach.fws.gov/Programs/Recovery/vbms5.html>.

^{xii} FS § 259.105.

^{xiii} The Florida Legislature expressed its intent that projects or acquisitions funded under the program “increase the protection of Florida’s biodiversity at the species, natural community, and landscape levels...” and “protect, restore, and maintain the quality and natural functions of land, water, and wetland systems of the state” as measured, in part, by the level of control of invasive plants in public waters and conservation lands. See FS § 259.105(4).

^{xiv} See section 601 of WRDA 2000 (Pub. L. 106-541).

^{xv} These water reservations are memorialized in a January 2002 Memorandum of Agreement between the State of Florida and the United States.

^{xvi} The U.S. House Report (H. Rept. 108-195) accompanying the Fiscal Year 2004 Interior Appropriations bill (H.R. 2691) expresses concern that the EFA amendments threaten the future of Everglades restoration. The bill includes stipulations that Federal funding for Everglades restoration be linked to specific progress on improving water quality. Concern from environmentalists and Florida’s federal partners prompted Governor Bush to call for a special legislative session to “clarify” certain language in the original May 20, 2003 bill. The amended bill passed on June 10, 2003. See FL Senate Bill 0626ER, available at www.dep.state.fl.us/evergladesforever/legislation/s0626er.pdf.

^{xvii} The use of moderating provisions is allowed until the year 2016.

^{xviii} See 68 Fed. Reg. 64199. The final regulations are codified at 33 C.F.R. Part 385.

^{xix} These procedural rules are required by WRDA 2000 § 601(h)(3).

hydrologic basins.¹⁴ Each district owns large tracts of land and waterworks (such as canals and levees) which they manage for flood control, water supply, and public use.¹⁵ The South Florida Water Management District (SFWMD) is the largest district, spanning 16 counties in central and southern Florida and including over 1,800 miles of canals and levees. SFWMD is also the primary local sponsor for implementing CERP.

The water management districts play varying roles with respect to invasive species. The St. John’s, South Florida and Southwest Florida

Districts have major roles in invasive species management and control. SFWMD has additionally taken a lead role among the state water management districts and in Everglades Restoration to help fund and coordinate invasive species management including herbicide trials, monitoring programs, and biological control programs for melaleuca, Old World climbing fern, and Brazilian pepper. Additionally, the five water management districts have formed a planning committee on invasive species in an attempt to coordinate their collective actions and help set

mutual control, management, and funding priorities.

LOCAL INVASIVE SPECIES PREVENTION AND CONTROL

At least twelve Florida counties have their own invasive species requirements and programs, along with a number of municipal governments. Many counties have control and maintenance programs (often partially funded by the state) to manage invasive species infestations in county parklands and preserves. Others use “dirty lists” embedded in zoning ordinances, land development codes, and local xeriscape ordinances¹⁶ to restrict plantings of nuisance species. A few counties use innovative incentives and tax credits to encourage removal of invasives. A comprehensive accounting of all of these local programs is beyond the scope of this report, but three local programs are described to highlight the diverse tools available to local governments to control invasives within their jurisdictions.¹⁷

Palm Beach County

Palm Beach County has an aggressive program requiring landowners within 500 feet of a conservation area to remove nine invasive plant species (air potato, Australian pine, Brazilian pepper, carrotwood, earleaf acacia, kudzu, Old-world climbing fern, melaleuca, and umbrella tree).¹⁸ Properties outside the 500-foot buffer area are only required to remove air potato and Old-world climbing fern. The County is offering incentive/financial assistance programs to residents within the buffer areas whereby the County pays for the removal of Australian pine and Melaleuca and offers a cost share program for the removal of the other seven invasive plant species.¹⁹ Buffer area properties that choose not to participate in the incentive programs will be required to remove the

plant species on their own, with removal deadlines between 2004-2012 depending on the plant species.

Palm Beach County’s Department of Environmental Resources Management (DERM) also administers an Invasive Vine Strike Force program to assist property owners County-wide with the removal of Air Potato and Old-world climbing fern and a Public Lands Grant Program is assist local municipalities with the removal of invasive vegetation from public properties.

Miami-Dade County

The Miami-Dade County Code prohibits the importation, sale, propagation, and planting of a list of thirty prohibited exotic plant species throughout the county.²⁰ The County Landscape Code also contains lists of “Prohibited” and “Controlled” species subject to planting restrictions on properties that require a building permit.²¹

Miami-Dade County also has an interesting property tax incentive program to encourage land conservation. Property owners are eligible for a tax credit if they pledge to keep their property preserved as a natural area for ten years and prepare a Natural Areas Management Plan that includes exotic species control.²²

City of Sanibel

Sanibel recently completed a successful fifteen-year effort to eradicate Melaleuca from the island, and has moved on to Brazilian pepper. The Brazilian Pepper Removal Program establishes numbered zones within the City, in which residents are given technical and financial assistance to voluntarily remove Brazilian pepper, along with six other invasive plant species, within a specified time period. After the specified time period expires, Brazilian pepper removal becomes mandatory and City incentives will no longer be available.²³ Sanibel also requires the removal of Melaleuca and Brazilian pepper when land development permits are issued.²⁴

State preemption of new local lists

In 2002, the Florida Legislature, in response to nursery industry pressure, passed a bill that significantly cuts back local authority to respond to new regional invasive species problems. The new bill prohibits local governments from regulating plant species not already listed on the FDACS noxious weed or FDEP prohibited aquatic plant lists.²⁵ The effect of this provision is tempered slightly by a “savings clause” that “grandfathers” local ordinances in effect prior to March 1, 2002, such as the Palm Beach, Miami-Dade, and City of Sanibel programs described above.²⁶

STATE PROGRAMS AND PARTNERSHIPS

The sheer number of interconnected actors and actions involved in invasive species management complicates attempts at organized and articulate presentation. Nearly all authorities and agency actions overlap in certain respects with other programs or are reinforced by multi-agency partnerships. This section presents the general outline of Florida’s major state programs, and highlights key components and partnerships. Strengths and weaknesses, while only lightly touched upon here, are examined in more detail in Chapter 4.

PREVENTION

The Florida Department of Environmental Protection, Department of Agriculture and Consumer Services, and the Fish and Wildlife Conservation Commission administer regulatory programs aimed at preventing the entry and establishment of various invasive species in the state. The programs augment federal prevention authorities and impose additional layers of requirements. While FDEP, FDACS, and FWC have dedicated inspection and enforcement staff, the state agencies rely extensively on cooperation

and information sharing with APHIS, Customs and Border Protection (CBP), and USFWS employees at Florida’s ports of entry, especially at Miami International Airport. The major state regulatory programs are described in the following subsections.

FDACS Plant Pest, Noxious Weed, Animal Disease Regulations

By law, any organism which may pose a risk to Florida agriculture, become a nuisance, threaten native Florida wildlife, or pose a serious health risk to humans or livestock requires a permit to import into the state. The FDACS Division of Plant Industry (DPI) administers a comprehensive permit program to regulate the entry and movement of plant pests and noxious weeds that threaten Florida’s agricultural, horticultural, and native plant resources.²⁷ The Bureau of Plant and Apiary Inspection requires the registration of all nurseries and conducts inspections of nursery stock several times each year. The Bureau of Entomology, Nematology and Plant Pathology administers a permit program for the movement of commercial and biological control arthropods and screens permit applications for the importation or movement within Florida of plant pathogens or plant materials suspected of harboring plant pathogens. FDACS Division of Animal Industry regulates animal imports and is authorized to “take such measures as may be necessary and proper for the control, suppression, eradication, and prevention” of communicable animal diseases and pests.²⁸

FDACS has broad authority to declare quarantines and conduct eradication and control programs if harmful invaders slip through border defenses.²⁹ The FDACS Office of Law Enforcement maintains Agricultural Inspection Stations along the highway system to examine incoming vehicles for prohibited items and to determine if agricultural products are properly certified for entry into the state.³⁰ FDACS also has exclusive authority to regulate, inspect, and permit nursery owners, plant brokers, and stock dealers to

prevent dissemination of plant pests and noxious weeds.³¹

FDACS permit programs include:

- Division of Plant Industry (DPI) Permits (FAC Ch. 5B-57):
Permits are required to “introduce, possess, move, or release any arthropod, plant pest, biological control agent, noxious weed, or invasive plant regulated by the department or the USDA.”³² The Department maintains a **Noxious Weed and Invasive Plant List**.³³ Plants may be listed if they are “determined to be a serious agricultural threat in Florida, or have a negative impact on [protected native flora], or if the plant is a naturalized plant that disrupts naturally occurring native communities.”³⁴
- Noxious Weed Seeds (FS § 578.13; FAC Ch. 5E-4):
It is unlawful to “sell, distribute for sale, offer for sale, expose for sale, handle for sale, or solicit orders for the purchase of any agricultural, vegetable, flower, or forest tree seed within this state” that contains listed noxious weed seeds in violation of the tolerances set out in FDACS rules.
- Animal Imports and Movement (FS § 585.145; FAC Ch. 5C-3):
“No animal shall be imported into the state, moved within the state, or the ownership thereof transferred” without complying with FDACS regulations.³⁵ The department is authorized to declare by rule that a certain pest or disease of animals is a public nuisance, and is empowered to take broad measures to prevent or eradicate it.³⁶

FDEP Aquatic Plant Permits

The Florida Department of Environmental Protection is the lead state agency with respect to invasive aquatic plants.³⁷ On the regulatory side,

the agency requires permits for any business activities involving aquatic plant species.³⁸ In addition, the Department maintains a **Prohibited Aquatic Plant List**³⁹ and prohibits the personal use and possession of listed plants without a permit. A third FDEP permit program regulates the removal or control of aquatic plants in order to ensure the correct use of herbicides and protect native and beneficial aquatic plant populations.⁴⁰

FDEP has authority to enter and inspect any other facility or place where aquatic plants are cultivated, stored, or sold and to seize or destroy any plants held in violation of the Department’s rules.⁴¹ The one exception is aquatic plants grown in nurseries, which are under the exclusive jurisdiction of FDACS.⁴²

FDEP permit programs include:

- Business activities (FS § 369.25; FAC Ch. 62C-52):
All non-nursery business activities involving the importation, transportation, cultivation, collection, sale, or possession of *any* aquatic plant species requires a permit from DEP.
- Prohibited aquatic plants (FS § 369.25, FS § 369.251; FAC Ch. 62C-52):
FDEP administers a regulatory list of aquatic plants that have “the potential to hinder the growth of beneficial plants, interfere with irrigation or navigation, or adversely affect the public welfare or the natural resources of the state.”⁴³ Class I Prohibited Aquatic Plants may not be possessed, collected, transported, cultivated, or imported under any circumstances without a permit from DEP.⁴⁴ A shorter list of Class II Prohibited Aquatic Plants may be cultured in a nursery for sale out of state only, but they may not be imported or collected from the wild and must be securely contained in the nursery.⁴⁵

- Aquatic plant control (FS § 369.20(7); FAC Ch. 62C-20):

A DEP permit is required to control, eradicate, remove, or otherwise alter any non-indigenous aquatic plants in waters of the state.

Florida Fish and Wildlife Conservation Commission (FWC) Wildlife Permits

The Florida Fish and Wildlife Conservation Commission administers a wide range of fish and wildlife permit programs, a number of which apply to nonnative species. Wildlife inspectors from the FWC Division of Law Enforcement monitor wildlife importers, zoos, pet shops and dealers, and personal wildlife owners for compliance with state and federal rules. FWC permit programs include:

- Non-natives, generally (FS § 372.265; FAC § 68A-4.005):

It is unlawful to possess, transport, or otherwise bring into the state or to release or introduce in the state animal species not indigenous to Florida without having first obtained a permit from FWC.

- Non-native aquatic species (FS § 372.26; FAC § 68A-23.008):

A permit is required to “transport into the state, introduce, or possess for *any* purpose that can be reasonably expected to result in liberation into the waters of the state any aquatic species not native to the state,” *except* for two listed species (the fathead or tuffy minnow and the variable platy).⁴⁶

“*Restricted species*” may only be possessed with a special permit and sold only to individuals with a special permit for that species.⁴⁷ Species classified as such include:

Bighead carp	Nile perches
Bony-tongue fishes	Silver carp
Blue catfish	Snail or black carp
Dorados	Tilapias (some)
Freshwater stingrays	Various crayfish species
Grass carp ⁴⁸	Walking catfish

“*Prohibited species*” may not be imported, sold, possessed, or transported in state (limited exceptions may be made for large public aquaria or research purposes).⁴⁹ Species classified as such include:

African electric catfish	Mitten crabs
African tigerfish	Piranhas
Airbreathing catfish	Pirambebas
Airsac catfishes	Snakeheads
Australian crayfish	Tilapias
Candiru catfish	Freshwater electric eels
Freshwater electric eels	Trahiras
Green sunfish	or tigerfish
Lampreys	Zebra mussels

- Non-native marine species (FS § 370.081):

It is unlawful to import or possess any non-indigenous marine plant or animal that “may endanger or infect the marine resources of the state or pose a human health hazard.” All species of sea snakes (Family *Hydrophiidae*), Weeverfishes (Family *Trachinidae*), and Stonefishes (Genus *Synanceia*) are specifically prohibited by statute.⁵⁰ FWC is authorized to adopt rules to include any additional marine plants and animals, but it has not exercised this authority.⁵¹

- Sale and exhibition of wildlife (FS § 372.921; FAC § 68A-6.0021):

Every person, firm, or corporation that sells or exhibits wildlife in Florida (whether indigenous or not) must be licensed. It is illegal to buy, sell, or transfer any wildlife to or from any unpermitted entity within Florida.

- Personal Pet Permits (FS § 372.922; FAC Ch. 68A-6):

FWC regulates the personal possession of wildlife (whether indigenous or not). The agency classifies wildlife according to the danger it presents to the owner and general public.⁵²

Class I wildlife (including great apes and other large primates, large cats such as lions and tigers, elephants, rhinos, hippos,

crocodiles, and bears) may not be possessed as a personal pet in Florida.

Class II wildlife (including mid-size cats such as cougars and bobcats, medium-sized primates such as macaques and howler monkeys, wolves, coyotes, caiman, badgers, and ostriches) may be possessed as pets, but applicants must demonstrate a substantial amount of personal experience to qualify for a permit.

Class III wildlife (all those not listed in Class I or II or specifically exempted by rule) require an easily obtainable no-cost permit for personal use.

Unregulated wildlife: Several species of wildlife are exempted from permitting requirements. Wildlife that may be possessed for personal use without a permit include all non-protected and non-venomous reptiles and amphibians, several species of small rodents, song birds, and various other species.⁵³

- Triploid grass carp (FAC § 68A-23.088):
A permit is required to use these fish as biological control agents.
- Nutria (FS § 372.98):
Personal possession and the release of any animal of the species *myocastor coypu* (nutria) are prohibited without a permit from the Commission.

CONTROL AND MANAGEMENT

The need for invasive plant management affects nearly every large property holder in South Florida. The state and federal governments, as owners and managers of vast tracts of South Florida lands, are no exceptions. While individual agencies are generally responsible for management of their own parcels, large cooperative networks have been established under the auspices of FDEP's Bureau of Invasive Plant Management to share resources and set priorities. Exotic animal control is at a less

developed stage, although it is beginning to attract attention.

Invasive Aquatic Plant Control

The Florida Department of Environmental Protection, in partnership with the U.S. Army Corps of Engineers and Florida's water management districts, is responsible for invasive aquatic plant control in Florida's canals, channels, lakes, and other public waters.⁵⁴ The Corps of Engineers Jacksonville District⁵⁵ oversees the Corps' Removal of Aquatic Growth (RAG) and Aquatic Plant Control (APC) programs, and is generally responsible for controlling floating invasive plants such as water hyacinth and water lettuce in Florida's federal navigation channels and structures.⁵⁶ Florida's water management districts are concerned with invasive aquatic plants in thousands of canals, levees and lakes in their respective hydrological basins.⁵⁷ FDEP is specifically responsible for all intercounty waters, but also supervises, coordinates, and funds broader aquatic plant control efforts statewide.⁵⁸

- FDEP Aquatic Plant Control Grant Program, (FS § 369.22; FAC Ch. 62C-54):

In 1971, the Florida Legislature designated FDEP (then the Florida Department of Natural Resources) as the lead agency for coordinating aquatic plant control activities in the state, and authorized the agency to "disburse funds to any special district or other local authority charged with the responsibility of controlling or eradicating aquatic plants."⁵⁹ FDEP's Bureau of Invasive Plant Management (BIPM) carries out this responsibility by distributing funds from an Invasive Plant Control Trust Fund⁶⁰ to water management districts, local governments, and others "for the purpose of managing noxious aquatic plants in sovereignty lands."⁶¹

Because funding is limited, FDEP rules establish criteria to identify waters eligible for funding.⁶²

The agency conditions eligibility on public boating access as follows:

- 1) The waterbody must be sovereignty lands, or a site which might adversely impact sovereignty lands; and
- 2) The waterbody must have access to the boating public by way of an established, improved boat ramp or a direct navigable connection to an eligible waterbody.⁶³

FDEP reimburses government and private sector contractors for approved aquatic plant control conducted in program-eligible waters. Annual work plan priorities are established during consultation with participating governments, FWC, and other interested stakeholders, and are incorporated into task assignment contracts with the FDEP.⁶⁴ Since many eligible waters are under multiple agency jurisdictions, BIPM holds regular interagency meetings to determine management objectives. BIPM's Field Operations Service (FOS) supports priority setting through annual surveys of the state's publicly accessible water bodies for types and extent of aquatic plant communities.

An estimated 450 public water bodies covering approximately 80 percent of Florida's open water surface (nearly 1.2 million acres) are eligible for funding. Agricultural canals and lakes with no public boat access are not eligible for BIPM funding, and are the responsibility of water management districts, local governments, and adjacent property owners. Wetland areas such as Everglades National Park or SFWMD-managed water conservation areas (WCAs) are also not eligible, and must rely on other sources of funding.

Invasive Plant Management on State and Federal Conservation Lands

Invasive plant control on state and federal conservation lands has become a high priority in Florida. The Florida Park Service,⁶⁵ FDACS Division of Forestry,⁶⁶ Florida FWC,⁶⁷ and state

water management districts,⁶⁸ along with the U.S. Forest Service,⁶⁹ U.S. Fish and Wildlife Service,⁷⁰ and the National Park Service⁷¹ are all responsible for managing conservation lands in Florida and all are faced with daunting invasive plant infestations.⁷² Instead of having to face these challenges alone, however, they are being assisted by a relatively new FDEP program that provides coordination, funding, and expertise.

· FDEP Upland Weed Control Grant Program (FS § 369.252):

In 1997, the Florida Legislature expanded FDEP's authority from regulation of solely aquatic plants to also include upland invasive plants, and further directed the Bureau of Invasive Plant Management (BIPM) to establish a program to "achieve eradication or maintenance control of invasive exotic plants on public lands" when determined to be "detrimental to the state's natural environment or...a threat to the agricultural productivity of the state."⁷³ The Uplands Program funds individual site-based invasive plant removal projects on public conservation lands throughout the state (local, state, and federal proposals are equally eligible).⁷⁴

The Uplands Program is based on a philosophy that persons familiar with local conditions should have a role in setting project priorities. This philosophy is built into the project selection and funding process through a statewide network of eleven regional Invasive Plant Working Groups composed mainly of federal, state, and local government conservation land managers.⁷⁵ Each Working Group meets regularly to discuss local conditions and regional control priorities. Once each year, representatives from each Working Group gather at a statewide meeting to review regional proposals, rank statewide control priorities, and award funding to the highest rated projects.⁷⁶ Local, state, and federal proposals are equally eligible for FDEP funding,

although the program is limited to projects on public conservation lands.

· **Ecosystem Restoration Acquisition Lands:**

Accelerating state and federal land acquisition under South Florida Ecosystem Restoration authorities is driving a greater need for invasive species control in upland areas. The Save Our Rivers (SOR) and Conservation and Recreation Lands (CARL) programs enable water management districts to buy lands needed for water management, water supply, and the conservation and protection of water resources with funds from a Water Management Lands Trust Fund.⁷⁷ Land acquisition accelerated under the Preservation 2000 and Florida Forever Programs, which authorized the state to sell bonds to acquire and protect environmentally sensitive land and water resources.⁷⁸ SFWMD also acquires lands to implement the state's obligations under the Everglades Forever Act,⁷⁹ including the acquisition and creation of stormwater treatment areas to reduce phosphorus levels entering Everglades National Park. Land acquisition is also proceeding through CERP and under local government programs.⁸⁰

Many of these acquisition lands are severely impacted by invasive species and require a great deal of resources and work. According to SFWMD, exotic species control is consistently the single largest item in its Land Stewardship Program annual budget.⁸¹

RESEARCH

The primary agencies driving invasive species related research in Florida are the USDA Agricultural Research Service (ARS) and the University of Florida Institute of Food and Agricultural Sciences (IFAS). The ARS Invasive Plant Research Lab in Fort Lauderdale provides expertise in entomology and biological control ("biocontrol"); the lab finds insects that will target invasive plant species and are safe to be released

into the ecosystem.⁸² The Army Corps of Engineers, FDEP Bureau of Invasive Plant Management, and FDACS Division of Plant Industry contribute research and technology transfer on invasive plant control technologies. NOAA's Southeast Fisheries Science Center and USGS's Florida Caribbean Science Center are active in exploring the invasive potential of Florida's marine and fish species. FWC's Florida Marine Research Institute monitors selected invasive species and is pursuing funding for more in-depth research.

STRATEGIC PLANNING AND COORDINATION

There are three primary groups (two state and one federal) dedicated to strategic planning and coordination of overall invasive species efforts in Florida. The **State Invasive Species Working Group (ISWG)** was formed in 2001 and comprises ten representatives from nine state agencies and one university. The group completed a Statewide Invasive Species Strategic Plan in 2002 that recommends a total of eighteen general action items to improve statewide coordination and cooperation, prevention of new biological invasions, surveillance, rapid response, control and management, and public education about invasive species.⁸³

The **Florida Pest Exclusion Advisory Committee** is another multi-stakeholder committee composed of 24 members from DACS, agricultural interests, citizens at large, research and extension programs, USDA APHIS, Florida Department of Health, FDEP, FWC, and the Florida Legislature. It was created by the Florida Legislature in 1999 to conduct a comprehensive review of Florida's existing and proposed exclusion, detection, and response programs.⁸⁴ The committee published a report in 2001 that reviewed the state's exclusion, detection, and eradication policies, and suggested improvements to Florida's laws, policies, and programs.⁸⁵

The **South Florida Ecosystem Restoration Task Force (SFERTF)** was created in 1993 by an interagency agreement among six federal agencies

(Interior, Army, Justice, Agriculture, EPA, and Commerce) to “coordinate the development of consistent policies, strategies, plans, programs, and priorities for addressing the restoration, preservation, and protection of the South Florida ecosystem.”⁸⁶ The Water Resources Development Act (WRDA) of 1996 formally authorized the Task Force and expanded it to include State, SFWMD, local, and tribal representatives.⁸⁷ The Task Force also creates a Florida-based management team of senior officials, known as the Working Group (WG), from each participating agency. The Task Force and Working Group are generally responsible for the broad range of federal and non-federal programs designed to restore and sustain the South Florida Ecosystem,⁸⁸ but they do not have individual oversight or project authority. Rather,

they are responsible for coordinating programs and research, and facilitating the exchange of information and resolution of conflicts involving restoration of the South Florida ecosystem.⁸⁹

SFERTF’s Strategy for Restoration of the South Florida Ecosystem (entitled *Coordinating Success*) was initially released in July 2000, and includes invasive species management as one of its primary goals.⁹⁰ The Working Group also established two interagency teams—one focused on invasive plants and the other on animals—to coordinate and set management priorities in South Florida. The Noxious Exotic Weed Task Team (NEWTT) published a comprehensive assessment and strategic plan in 2001.⁹¹ The Florida Invasive Animal Task Team (FIATT) is currently initiating a similar effort.

¹ Including the Florida Department of Environmental Protection (FDEP), Fish and Wildlife Conservation Commission (FWC), Department of Agriculture and Consumer Services (FDACS), Department of Transportation (FDOT), and Northwest Florida, Southwest Florida, South Florida, St. John’s River, and Suwannee River Water Management Districts. These responsibilities are summarized below and are described in detail in the Florida Invasive Species Working Group’s *Statewide Invasive Species Strategic Plan for Florida* (2002).

² A recent FDEP survey of county activities reported that 28 Florida counties have active invasive plant programs and 16 have ordinances on invasive plants. See *Weeds Won’t Wait*, Chapter 1, note 8, *supra*.

³ The South Florida Water Management District (SFWMD) is the largest district in Florida and has the largest invasives control program. SFWMD is also the lead local sponsor of CERP.

⁴ ISWG comprises ten representatives from nine state agencies and one university. The working group and its strategic plan for Florida are discussed in more detail below and in Chapter 4, *infra*.

⁵ Florida’s aquatic plant management program dates back to the early 1900s. Responsibility for contracting herbicide and mechanical aquatic plant control was transferred from the FWCC to FDEP in 1980.

⁶ The cultivation of aquatic plants raised in Florida nurseries is regulated by FDACS Division of Plant Industry.

⁷ See FS § 369.252. FDEP’s Bureau of Aquatic Plant Management’s name was changed to the Bureau of Invasive Plant Management (BIPM) to better reflect this expanded mission.

⁸ See 7 U.S.C. § 7751 and FS § 581.031.

⁹ In 1975, USDA and Florida declared success in a joint effort to eradicate a giant African snails outbreak. The two agencies have successfully battled infestations of the Mediterranean fruit fly and are currently cooperating in an effort to eradicate citrus canker. In addition, much of the southeast, including Florida, is currently under quarantine to stop the spread of the imported red fire ant.

¹⁰ See FAC Ch. 5B-57.

¹¹ See Art. IV, Sec. 9 of the Florida Constitution.

¹² FWC’s management of feral hogs and introduction of non-native peacock bass as game species have proven controversial (although the peacock bass was introduced in large measure to control overabundant populations of other exotic freshwater fish in southeast Florida canals). See *Strangers in Paradise*, Chapter 1, note 1, *supra*.

¹³ This new interdisciplinary group will be responsible for coordinating an overall exotic species policy within FWC. Education and information processing will be early priorities for the group.

¹⁴ The Florida Legislature created the Central and Southern Florida Flood Control District (the predecessor to the South Florida Water Management District) in 1949 to take over the infrastructure of the flood control and water works constructed by the U.S. Army Corps of Engineers through the Central and Southern Florida (C&SF) Project. The present arrangement of five regional districts was created by the Florida Water Resources Act of 1972 (FS Ch. 373).

¹⁵ Florida law requires the water management districts to manage and maintain their lands for multiple purposes “to ensure a balance between public access, general public recreational purposes, and restoration and protection of their natural state and condition.” FS § 373.1391 (Management of real property).

¹⁶ “Xeriscape” means “quality landscapes that conserve water and protect the environment.” FS § 373.185 directs Florida’s water management districts to “design and implement an incentive program to encourage all local governments within its district to adopt new ordinances or amend existing ordinances to require Xeriscape landscaping.” The districts are also instructed to assist local governments by providing a model xeriscape code and other technical assistance. In order for a local xeriscape ordinance to qualify for a district’s incentive program, it must include “identification of prohibited plant species.” See FS § 373.185(2)(a)(b).

¹⁷ *Weeds Won’t Wait*, Chapter 1, note 8, *supra*, presents a comprehensive summary of local invasive plant programs in Florida.

¹⁸ For new construction, Section 9.5 of the County’s Unified Land Development Code requires the removal of the nine invasive plant species prior to the receipt of a Certificate of Occupancy.

¹⁹ See Palm Beach County Vegetation and Protection Code §§ 9.5(D)(2) and 9.5(F)(2)(a).

- ²⁰ See Ch. 24-27.1 of the Miami-Dade County Code.
- ²¹ Miami-Dade County Landscape Code, Ch. 18A.
- ²² See Miami-Dade County Code, Ch. 25, art. 2, §§ 25B-11-25B-19.
- ²³ See Sanibel Ordinance 97-89.
- ²⁴ See Section I.D.2 of the Sanibel Land Development Code.
- ²⁵ See House Bill 1681 (amending FS § 581.091(4)) (“A water management district when identifying by rule pursuant to s. 373.185, or a local government when identifying by ordinance or regulation adopted on or after March 1, 2002, a list of noxious weeds, invasive plants, or plants deemed to be a public nuisance or threat, shall only adopt the lists developed under this chapter or rules adopted thereunder”).
- ²⁶ See FS § 581.091(4) (“All local government ordinances or regulations, adopted prior to March 1, 2002, that list noxious weeds or invasive plants shall remain in effect”). The rider also requires FDACS, in conjunction with the Institute of Food and Agricultural Sciences at the University of Florida (IFAS), to “biennially review the official state lists of noxious weeds and invasive plants.” *Id.*
- ²⁷ See FAC Ch. 5B-57.
- ²⁸ FS § 585.145 (Control of Animal Disease).
- ²⁹ See generally FS Ch. 581 and 7 C.F.R. Part 330. The DPI Bureau of Pest Eradication and Control supports these programs.
- ³⁰ See FAC Ch. 5A-16; FAC § 5B-59.001(3).
- ³¹ FS § 581.031(1) grants the Department power “to make all rules governing nurseries and the movement of nursery stock as may be necessary for the eradication, control, or prevention of the dissemination of plant pests and noxious weeds. FDACS regulations provide instructions to the Bureau of Plant and Apiary Inspection for registering, inspecting, and certifying nurseries for compliance with plant pest and noxious weed requirements. See FAC §§ 5B-1.005 (Inspection of Nursery Stock or Articles), 5B-2.002 (Registering with the Division), 5B-2.0025 (Certification and Quarantine of Nursery Stock).
- ³² FAC § 5B-57.004.
- ³³ FAC § 5B-57.007.
- ³⁴ FAC § 5B-57.010. Formerly, only agricultural pests were eligible for listing, but new noxious weed classification procedures authorizing listing of “invasive plants” were added in April 2004. See *Id.* Plants listed on both the federal and FDACS noxious weed list require both a state and federal permit.
- ³⁵ FS § 585.145. The term “animal” includes “wild or game animals whenever necessary to effectively control or eradicate dangerous transmissible diseases or pests which threaten the agricultural interests of the state.” See FS § 585.01(10).
- ³⁶ See FS § 585.15.
- ³⁷ The Florida Aquatic Weed Control Act charges DEP with “direct[ing] the control, eradication, and regulation of noxious aquatic weeds ... so as to protect human health, safety, and recreation and, to the greatest degree practicable, prevent injury to plant and animal life and property.” FS § 369.20(2).
- ³⁸ FAC § 62C-52.003(1).
- ³⁹ FAC § 62C-52.011.
- ⁴⁰ FAC Ch. 62C-20.
- ⁴¹ FDEP’s enforcement authority is found at FS § 369.25(3)(h).
- ⁴² See FS § 581.035 (Preemption of regulatory authority over nurseries).
- ⁴³ FS § 369.25(3)(a). The Prohibited Aquatic Plant list is found at FAC 62C-52.011.
- ⁴⁴ FAC Ch. 62C-52.011(1).
- ⁴⁵ FAC Ch. 62C-52.011(2).
- ⁴⁶ FAC § 68A-23.008(1).
- ⁴⁷ FAC § 68A-23.008(2).
- ⁴⁸ Special regulations governing the use of grass carp for biological control are found at FAC § 68A-23.088.
- ⁴⁹ FAC § 68A-23.008(3).
- ⁵⁰ FS § 370.081(2).
- ⁵¹ FS § 370.081(3).
- ⁵² A complete list of Class I and Class II wildlife may be found in FAC § 68A-6.002.
- ⁵³ A complete list of exempted species may be found at FAC § 68A-6.0022.
- ⁵⁴ See FS § 369.20(2) (“The Department of Environmental Protection shall direct the control, eradication, and regulation of noxious aquatic weeds ... so as to protect human health, safety, and recreation and, to the greatest degree practicable, prevent injury to plant and animal life and property”).
- ⁵⁵ The U.S. Army Corps of Engineers Jacksonville District is the second-largest civil works district in the nation. It is responsible for flood control, navigation, and environmental restoration in thousands of miles of rivers, canals, and wetlands in a region stretching from southern Georgia to the U.S. Virgin Islands. The Aquatic Plant Control section at the Jacksonville District is a Corps-wide center of expertise on aquatic plant management. In addition to its work with aquatic vegetation, the Corps’ Aquatic Plant Control Section in Jacksonville also participates in a multi-agency Melaleuca management program and is responsible for development and implementation of a monitoring plan for the zebra mussel.
- ⁵⁶ The Corps is responsible for the St. Johns River and its tributaries north of Highway 520 and the waters within the levee of Lake Okeechobee. DEP funds the control of other plants within the St Johns River and all plant control in the River south of Highway 520. Other agencies control non-floating plants in Lake Okeechobee.
- ⁵⁷ The Northwest and Suwannee River Water Management Districts do no aquatic plant control in lakes and rivers and the St Johns River Water Management District controls plants in 5-6 public lakes and rivers. The majority of the control in public lakes and rivers is contracted by the FDEP with South and Southwest FL Water Management Districts and 9 Counties. About 30% is contracted with private companies.
- ⁵⁸ See FS § 369.22 (Non-indigenous aquatic plant control). “It is, therefore, the intent of the Legislature that the state policy for the control of non-indigenous aquatic plants in waters of state responsibility be carried out under the general supervision and control of the department.”
- ⁵⁹ FS § 369.20(5).
- ⁶⁰ The Invasive Plant Control Trust Fund is funded by documentary stamps, state gas taxes, and vessel registrations. The Fund received a total of \$33.5 million in 2002. Eighty percent—approximately \$25 million in 2002—is distributed to the aquatics program. The remainder funds FDEP’s upland invasive species control program. See FS § 369.252(4).
- ⁶¹ See FAC § 62C-54.0035(1). “Noxious aquatic plants” are defined as any part of an aquatic plant “which has the potential to hinder the growth of beneficial plants, to interfere with irrigation or navigation, or to adversely affect the public welfare or the natural resources of this state.” FAC 62C-54.003(23).
- ⁶² See FAC Ch. 62C-54 (Funding for Aquatic Plant Management).
- ⁶³ FAC § 62C-54.0035 (Waters Eligible and Eligibility Criteria for Aquatic Plant Management Funds). Several other minor eligibility criteria related to public access are included in the rules.
- ⁶⁴ See FAC § 62C-54.005 (Approval, Allocation, and Disbursement Procedures for Aquatic Plant Management Funds).
- ⁶⁵ The State Park Service (a Division of FDEP) seeks to restore and maintain original landscapes in over 150 state parks. The Park Service is currently following a five-year invasive species strategic plan to help guide longer-term invasives strategy.
- ⁶⁶ The Division of Forestry cares for thirty-six state forests spread over roughly 800,000 acres of forest and recreational lands.
- ⁶⁷ FWC is responsible for wildlife management and recreation on a combined 4.5 million acres in 130 wildlife management areas (WMA) and wildlife and

environmental areas (WEA) in the state. The Commission does not have a statewide management plan for invasive species control.

⁶⁸ SFWMD is responsible for invasive species control on much of the Everglades located outside the boundaries of Everglades National Park (including 500,000 surface acres of public lakes, over 850,000 acres of Everglades Water Conservation Areas (WCA), roughly 42,000 acres of Stormwater Treatment Areas (STAs), 150,000 acres of interim lands (lands slated for either STAs or water preserve areas) and on 250,000 acres of public conservation lands).

⁶⁹ USFS staff in Florida's four national forests (the Apalachicola, Ocala, Osceola, and Choctawhatchee—together encompassing over 1.25 million acres of land) carry out USFS noxious weeds policy by attempting to identify and control invasive plant species that have been identified on the FLEPPC list.

⁷⁰ USFWS is responsible for invasive species management in Florida's 29 National Wildlife Refuges. There are especially heavy infestations at A.R.M. Loxahatchee and J.N. "Ding" Darling NWR. Melaleuca and Old World climbing fern have infested nearly eighty percent of the habitat area at Loxahatchee.

⁷¹ The National Park Service manages eleven National Parks, Monuments, Preserves, and other sites in Florida. Everglades and Biscayne Bay National Parks have the greatest need for invasive species management. The National Park Service is currently undertaking a major revision of the Everglades General Management Plan, which will comprehensively address invasive species management. The scoping process began in January 2003 and the new plan is scheduled for implementation by summer 2006. *See* Everglades National Park, Park Planning website (http://www.nps.gov/ever/gmp/gmp_index.htm).

⁷² FDACS is not a land management agency, and is therefore less involved with control and management activities. But *see* FAC 5B-57.006 (directing FDACS to "cooperate with the USDA, the Florida Department of Environmental Protection, and other appropriate parties to eradicate or control noxious weeds and invasive plants that are established in the State . . .").

⁷³ FS § 369.252(1).

⁷⁴ Twenty percent of DEP's Invasive Plant Control Trust Fund has been carved out for "controlling nonnative, upland, invasive plant species on public lands." *See* FS § 369.252(4).

⁷⁵ Non-governmental organization representatives may also elect to participate.

⁷⁶ Proposals are ranked according to the following criteria:

- 1) Cooperative cost-share / matching funds are available through the management steward;
- 2) Target exotic species a) is recognized as having high invasion potential, and b) have current control technologies already established for control;
- 3) Control project will benefit specific threatened or endangered species;
- 4) Site has relatively high restoration potential.

See BIPM's Upland Invasive Plant Management Program Annual Report (2002).

⁷⁷ *See* FS § 373.59. Lands acquired through this program "shall be managed in an environmentally acceptable manner and, to the extent practicable, in such a way as to restore and protect their natural state and condition."

⁷⁸ *See* FS Ch. 259. The 2004 Florida Forever Work Plan reports that a total of \$282.2 million was spent in fiscal year 2003 to acquire 19,438 acres of land.

⁷⁹ EFA (FS 373.4592(5)) "The legislature declares that it is necessary for the public health and welfare that the Everglades water and water-related resources be conserved and protected. The Legislature further declares that certain lands may be needed for the treatment or storage of water prior to its release into the Everglades Protection Area. The acquisition of real property for this objective constitutes a public purpose for which public funds may be expended."

⁸⁰ Local governments, including Brevard, Lee, Barton, and Palm Beach

Counties, have expended hundreds of millions of dollars on land acquisition programs to preserve and protect environmentally endangered lands.

⁸¹ *See* SFWMD Land Stewardship Annual Report (2002). Vegetation management is funded through district and basin ad valorem taxes, mitigation funds, the Water Management Lands Trust Fund, CERP, and through DEP's cooperative funding program. SFWMD spent \$22 million on exotics control in 2003, about half of which came from DEP.

⁸² These efforts began in 1989 with the inception of a melaleuca biocontrol research program. In 2003, the lab cultured and released tens of thousands of psyllids in Dade and Broward counties to control stands of melaleuca trees. The lab is currently developing biological controls for Old World climbing fern. ARS also coordinates Area-wide Pest Management Initiatives that assemble a coalition of research institutions, land managers, and property owners to develop sustainable Integrated Pest Management (IPM) plans for specific invasive pests. Two notable examples in Florida are the Area-Wide Initiatives to control the red imported fire ant and melaleuca. *See, e.g.,* The Areawide Management Evaluation of Melaleuca quinquenervia (TAME Melaleuca), <http://tame.ifas.ufl.edu/index.htm>.

⁸³ *See Statewide Invasive Species Strategic Plan for Florida*, ISWG (2002) (available at http://ipm.ifas.ufl.edu/reports/FL_invasive_species_Strategic_Plan.pdf).

⁸⁴ *See* FS § 570.235 (Pest Exclusion Advisory Committee).

⁸⁵ *See* Pest Exclusion Advisory Committee Report, PEAC (2001) (available at <http://www.doacs.state.fl.us/pi/peac-full.pdf>).

⁸⁶ *See* sec. 528(g) of WRDA 1996 (Duties of the Task Force).

⁸⁷ WRDA 1996 § 528(f).

⁸⁸ The Comprehensive Everglades Restoration Plan (CERP) is the largest of these programs. It builds on many other projects that were authorized by Congress or the Florida Legislature prior to and independent of CERP.

⁸⁹ Congress has also directed the Task Force to assist in the establishment of an independent scientific panel to review progress made in restoring the ecology of the natural system. *See* WRDA 2000 § 601(j).

⁹⁰ The Task Force's Strategic Plan identifies three primary goals for the restoration effort:

- 1) Get the Water Right;
- 2) Restore, Preserve, and Protect Natural Habitats and Species; and
- 3) Foster Compatibility of the Built and Natural Systems.

Invasive species control and management is a critical subgoal of Goal 2. Specific objectives identified by the Task Force for achieving this subgoal are:

- a) Complete an invasive exotic plant species prevention, early detection, and eradication plan by 2005;
- b) Coordinate the development of management plans for the top twenty South Florida invasive exotic plant species by 2010; and
- c) Achieve maintenance control status for Brazilian pepper, melaleuca, Australian pine, and Old World climbing fern in all natural areas statewide by 2020.

See Coordinating Success: Strategy for Restoration of the South Florida Ecosystem, South Florida Ecosystem Restoration Task Force (2002) (available at <http://www.sfrestore.org/documents/index.html>).

⁹¹ *See Weeds Won't Wait*, Chapter 1, note 8, *supra*.

CHAPTER 4: GAPS, CONFLICTS, AND RECOMMENDATIONS

The central question of this report is how legal authorities can be interpreted, amended, or used differently to better address Florida’s invasive species problems. Marc Miller, in his critique of U.S. federal invasive species law, clearly identifies the challenge in answering this type of question:

If [the] combination of substantive statutes, general agency organic acts, various appropriation provisions, and binding international agreements have allowed 21 federal agencies to respond to varying degrees and in varying ways to harmful NIS [non-indigenous species], again an observer might fairly say: “Sure, this is a legal mess, but the total is, at least, the sum of the parts, and perhaps the parts, all together, make a working machine.” If this were so, the legal mess would be a lawyer’s quibble, and in the United States at least, those concerned about harmful NIS could focus solely on increasing appropriations and encouraging the various agencies to do more and to do what they do better. . . .

[H]owever...[i]f the question is changed from “what are these myriad agencies doing?” to “what would we want government agencies to do in response to harmful NIS?” then huge gaps are revealed.¹

Miller’s observations are equally applicable to this study. The preceding sections of this report answer the first question, “What are state and federal agencies doing in response to Florida’s invasive

species?” The following analysis addresses the second, “What would we want them to do?” This section recommends several actions to improve overall invasive species management in Florida. The recommendations may be implemented through amendments or creative application of existing authorities, or through the creation of new laws, regulations, and policies. They may be taken one at a time or, ideally, all at once through comprehensive legislation.

As demonstrated throughout this report, the state of Florida and the federal government both have an important role to play. Thus, the recommendations in this section may be implemented at either the state or federal levels, or both. Although federal regulation is critical, it should not preempt innovative state and local solutions, especially in states like Florida with unique invasive species problems.² An increasing level of intergovernmental coordination and cooperation will be needed to strike the appropriate balance.

As before, this section is organized by function, with recommendations one through four dealing with prevention; recommendations five and six with control and management; recommendation seven with research; recommendations eight and nine with education, outreach, and public partnership; and recommendation ten with strategic planning and coordination.

PREVENTION

As described in Chapter 2, a fractured and often contradictory legal framework is the prime obstacle to effective prevention efforts in Florida and throughout the United States. Other

impediments include fragmented regulatory authority, an incoherent and uncoordinated listing process, and a lack of resources for border inspection and rapid response. This subsection presents four recommendations to help fortify Florida's invasive species defenses through improvements in legal authority, implementation, and enforcement.

1) CLOSE THE GAPS IN REGULATORY AUTHORITY AND IMPLEMENTATION.

The legal framework for preventing the introduction and establishment of invasive species currently involves a stopgap collection of federal and state laws passed at different times and for different purposes. This has created gaps in agency authority and contributed to implementation failures that frustrate effective invasive species prevention at both the state and federal levels.

Gaps in authority

Because there is no overarching law that covers the full spectrum of potentially invasive species, regulators are forced to use a series of laws that address narrow slices of the invasive species problem. The jurisdictional definitions of each law determine which particular slice is covered. These definitions depend on the original purpose of each law. For example, federal and state plant protection authorities cover some microorganisms, some plants, and some animals, but only those that fit within their respective definitions of "plant pests," "invasive plants," or "noxious weeds."³

Not surprisingly, there are many gaps between the narrowly calibrated definitions in these various laws, which leave scores of potentially invasive species or species groups unregulated. For example, because the PPA is fundamentally a "plant protection" authority, CBP inspectors are powerless to stop invasive organisms that arrive with plants but are not themselves plant pests.⁴ As long as a piecemeal legal framework is used to regulate the entire field of invasive species, certain classes of species will inevitably fall between the cracks.

Gaps in implementation

Compounding the gaps in authority are gaps in implementation. The Florida Fish and Wildlife Commission is unique in that it is a constitutional agency, possessing the full regulatory and executive powers of the state with respect to wild animal, freshwater aquatic and marine life.⁵ Therefore, FWC regulators are not limited by traditional jurisdictional definitions, and have essentially unlimited authority over all animal species in Florida.

However, FWC has exercised very little of its authority to regulate potentially harmful exotic animals. FWC rules categorically prohibit the release of nonnative species without a permit,⁶ but there is no practical way to enforce this type of prohibition, and citations are virtually nonexistent. The agency imposes some minimal licensing requirements on exotic pet dealers, though there are relatively few restrictions on the types of species they are allowed to import and sell. Similarly, FWC's lists of prohibited wildlife and aquatic species are out of date and very short.⁷ In the meantime, new exotic animal species (some of which may become invasive) continue to show up in South Florida's protected areas. This example demonstrates that effective prevention requires more than just adequate authority-it requires consistent and proactive implementation.

Implementation failures are by no means unique to FWC, and the discussion above is not meant to assign blame, but rather to highlight a broader structural problem. The fragmentation of existing invasive species authority between disparate local, state, and federal government agencies allows each agency to exercise its individual authority according to its own historic role and legislative mandates. In general, agricultural agencies tend to be sympathetic to farming interests; fish and game agencies appreciate non-native species for their recreational and commercial values; park managers favor a return to pristine conditions without any non-natives, whether invasive or not. The current legal regime, however, provides no help in sorting out these competing policy preferences. This

failure, coupled with extensive overlapping authority (there are three different prohibited plant lists administered by three different agencies in Florida alone), results in confusion, coordination problems, and conflict.⁸

The lack of a common underlying rationale for invasive species policy has also allowed interest groups to set lawmakers against one another to win specific statutory loopholes and exclusions. Florida law is full of such inconsistencies and conflicts, including a provision allowing Florida nurseries to cultivate water hyacinth despite the fact that the State spends millions of dollars per year to keep the invasive plant under maintenance control.⁹ Florida’s preemption of new local invasive species programs¹⁰ and FDACS veto power over the FDEP Prohibited Aquatic Plant List¹¹ are additional examples of these kinds of internal inconsistencies.

A holistic approach

The current reliance on a piecemeal legal framework is not surprising, given that scientists and policymakers have only recently begun to think about invasive species as a conceptual whole instead of a collection of individual problems. However, it is now becoming clear that the current approach is unsustainable. A new holistic legal framework is needed to close the gaps in authority and better reflect an ecological understanding of biological invasions.

Some commentators have called for a new “core” invasive species law to replace the current framework.¹² However, instead of wholly displacing current programs, new state and federal laws could simply establish a lead agency with a clear environmental mandate to link together current programs and fill the gaps between them.¹³ Systematic procedures to assess and prioritize threats would focus regulations on the most harmful invaders, and action-forcing provisions could help ensure consistent implementation. Until this vision is achieved, creative thought is needed to obtain the most mileage possible from existing authorities and programs.¹⁴

2) IMPLEMENT A SYSTEMATIC, SCIENCE-BASED LISTING PROCESS.

The use of harmful species lists is one of the most common prevention mechanisms for invasive species. The act of listing generally triggers laws and rules regulating the possession, sale, or movement of listed species.¹⁵ Five state and federal agencies maintain lists of regulated harmful species that apply in Florida:

- FDACS Noxious Weed List;
- FDEP List of Prohibited Aquatic Plants;
- FWC wildlife lists;
- USDA Federal Noxious Weed List; and
- USFWS lists of “injurious” animal species.

Table 6: Minnesota’s Four-tiered Listing System for Exotic Species

Prohibited exotic species (Minn. Rule 6216.0250)	It is unlawful to possess, import, purchase, transport, or introduce these species except under a permit for disposal, control, research or education.
Regulated exotic species (Minn. Rule 6216.0260)	It is legal to possess, sell, buy, and transport these species, but they may not be introduced into a free-living state.
Unregulated exotic species (Minn. Rule 6216.0270)	These exotic species are not subject to regulation under the program (a “clean list” approach).
Unlisted exotic species (Minn. Rule 6216.0290)	Persons wishing to release any exotic species not listed as prohibited, regulated, or unregulated must first file an application with the state so that the species may be classified.



JOHN M. RANDALL, THE NATURE CONSERVANCY. LEFT TO RIGHT: LYGODIUM MICROPHYLLUM; MELALEUCA QUINQUENERVIA.

Each of these agencies follows a “dirty list” approach. A dirty list imposes restrictions only on the listed species, leaving all unlisted species free from regulation. This approach assigns to regulators the burden of determining whether a species is harmful. In contrast, a “clean list” identifies species approved for import, introduction, or release. This approach generally places the burden on the regulated community to prove that any new species will not pose an economic or environmental threat.

The problems with dirty lists are twofold. First, it generally takes a long time to add a species, even after it is clear the species is harmful. Species are often listed only after they have become established in the wild, which is too late for purposes of prevention. Second, there are typically few mechanisms in place to predict whether newly introduced species are invasive. This leads to legislative inertia and inaction in the face of unknown risk. Extensive private investment in existing uses of exotic species contributes to this chilling effect. In Florida, regulatory gridlock has become severe, especially with regard to exotic animals. Few agencies have a structured process in place to evaluate and list new species.

Systematic procedures needed

New listing procedures could help break this regulatory logjam, and more effectively prevent outbreaks of invasive species in Florida. The listing process should be transparent, scientific, and would ideally provide for public, industry, and other stakeholder input. It should also require regular review and revision of existing lists (including both listing and delisting decisions). A *pre-screening process* for all intentionally imported species could dramatically reduce the chances of unwanted invasions. This process could include easy exemptions for large groups of species that have a record of prior introductions and safety (cattle, crop varieties, etc) or where adequate scientific data shows the species is not likely to become invasive.

Consider “hybrid” lists

There is a lot of pressure in Florida against the use of clean lists. This is due in part to fears in the regulated community that a clean listing approach will unfairly restrict harmless exotic species. Many states, however, have used clean lists to protect their economy and environment without

disproportionately burdening industry.¹⁶ In addition, the choice between clean or dirty listing is not so black or white. Hybrid or “tiered” lists represent a middle ground that can be used to balance the burdens of regulation.

Minnesota’s exotic species law is a good example of a hybrid approach. Minnesota’s program uses multiple lists to create a four-tiered classification system for exotic wildlife and aquatic plant species.¹⁷ The program blends two different dirty lists (“prohibited” and “regulated” species) with a clean list of approved exotic species that are not subject to regulation under the program.¹⁸ This framework shares the burden between the regulators and the regulated community, and seeks to balance this burden with an appropriate and prudent level of environmental protection.¹⁹ Table 6 summarizes Minnesota’s system.

A similar hybrid approach could easily be adapted into Florida’s rules. In fact, FWC currently uses a tiered listing approach for aquatic species. The rules for non-native aquatics include a clean list,²⁰ a “restricted” list, and a “prohibited” list.²¹ It is not clear, however, how active the Commission has been in implementing, enforcing, or updating these requirements.

In sum, listing can be one of the government’s most effective prevention tools, but it needs to have a scientific basis, a rational “theory” or structure, and be regularly updated. There are some indications that Florida is moving in this direction. New classification procedures spelled out in FDACS regulations create a “Noxious Weed and Invasive Plant Review Committee” to review listing and delisting petitions, and conduct a required biennial review of the department’s noxious weed list.²² These kinds of systematic, public, and transparent procedures impart legitimacy to the listing process, and will likely result in greater support from the regulated community.

Federal agencies should also explore new listing theories for invasive species. The current dearth of listed species and the federal government’s continuing failure to screen the unrelenting stream

of exotics into Florida should concern those responsible for South Florida ecosystem restoration. The arrival of another species like melaleuca or Old World climbing fern could set efforts back by many years and millions of dollars. If the federal government leads on listing, the states will likely follow.

3) BEEF UP BORDER PROTECTION.

Florida’s front lines need reinforcements

The heart of Florida’s prevention program consists of a small troop of federal and state inspectors and law enforcement officials at Florida’s ports of entry and highway inspection stations. Unfortunately, these public servants are understaffed and underfunded. Inspectors can only individually examine approximately two percent of the incoming shipments to the Miami Plant Inspection Station.²³ The U.S. Fish and Wildlife Service Division of Law Enforcement has ten wildlife inspectors and four criminal investigators assigned to cover the entire region from West Palm Beach through the Caribbean.²⁴ Moreover, because the Lacey Act and Florida regulations prohibit so few species, the agents rarely have authority to stop exotic wildlife shipments.

Homeland Security Act leaves status of invasives border security uncertain

On March 1, 2003 the Homeland Security Act transferred nearly 2,600 employees from APHIS’ Agriculture Quarantine Inspection force into the Department of Homeland Security’s Bureau of Customs and Border Protection (CBP).²⁵ Under the new organization, APHIS maintains a policy and scientific development role, but is no longer responsible for front-line inspection and enforcement duties. Many observers in the agriculture and natural resources communities are concerned about the reassignment. Customs and Border Protection officers have a much broader homeland security mission than the former PPQ staff, and may not consider invasive species a priority. They also lack training in plant science.

Asa Hutchinson, the Undersecretary for Border and Transportation Security at DHS anticipates a “smooth transition,” and has expressed hope that the merger will bring even more attention to agriculture.²⁶ However, it is too early to tell whether an awareness of the importance of agricultural inspection has been transferred to the front lines.²⁷

Concerns about other pathways

Border protection has long focused on invasive “hitchhikers” that stow away in plant or commodity shipments or the ballast water of ships. However, intentional introductions are also a threat. Florida’s Pest Exclusion Advisory Committee (PEAC) recently concluded that commercial smuggling of prohibited plants and animals is far more widespread in Florida than was previously imagined.²⁸ Their report called for increased state and federal support for smuggling interdiction efforts at ports of entry and the marketplace.²⁹

The interstate shipment of exotic plants and pests through the mail presents regulators with

another serious challenge. The PPA prohibits the unauthorized mailing of plant pests,³⁰ and APHIS regulations require all mail from foreign countries “which, either from examination or external evidence, are found or are believed to contain plants or plant products” to be submitted to plant quarantine inspectors.³¹ However, the Postal Service and APHIS have little capacity to inspect and regulate the massive volume of U.S. mail. Florida’s prevention framework relies heavily on inspections of in-state nurseries and places of business. This approach is compromised by the increasing rate of internet and mail order sales of exotic species (which are shipped door-to-door and from outside the state). This represents a rapidly growing hole in the invasives safeguarding system.

Stronger federal protection is essential

The U.S. Constitution places strict limits on state regulations that burden interstate or foreign commerce.³² Therefore, strong federal enforcement of import regulations is essential.³³ Most importantly, federal inspectors and law

THE FLORIDA CITRUS CANCKER CONTROVERSY

Florida has struggled with citrus canker, a bacteria that attacks the fruit, leaves, and stems of citrus plants, since it was first discovered in the state in 1914. In order to protect Florida’s citrus industry, the state legislature enacted a detailed program requiring FDACS to control and prevent the spread of the canker.ⁱ After a new outbreak in the late 1990s, FDACS began aggressively implementing an eradication program. The most controversial provision required FDACS to remove and destroy all citrus trees (including healthy

trees) that had been “exposed to infection.”ⁱⁱ Private landowners, furious that their healthy trees were being destroyed without their consent, challenged the constitutionality of the eradication program in the Florida courts. In February 2004, the Florida Supreme Court upheld the constitutionality of the program, finding that it was a valid exercise of the state’s police power and did not violate the landowner’s rights to substantive due process.ⁱⁱⁱ

ⁱ See FS § 581.184.

ⁱⁱ See FS § 581.184(2). Trees “exposed to infection” were defined as those trees “located within 1,900 feet of an infected tree.” FS § 581.184(1)(b).

ⁱⁱⁱ See *Haire v. FDACS*, 870 So.2d 774 (Fla. 2004) (upholding the Constitutionality of FS § 581.184 which authorized the FDACS to implement and enforce the eradication of citrus canker by destroying both healthy and infected privately owned citrus trees, but finding that the state had to offer landowners “more than token compensation” for the loss of each citrus tree they destroy).

enforcement agents must be supported with adequate resources. There is little logic in spending billions of dollars to restore the South Florida ecosystem while a gaping hole in Florida's border defenses is ignored.

4) BUILD MONITORING AND RAPID RESPONSE CAPACITY.

Once an invasive species becomes established, it is nearly impossible to achieve complete eradication. The most that can typically be hoped for is maintenance control. A key element of prevention is the capacity to discover and eliminate small, easily controllable outbreaks of new pests before they develop into expensive, unmanageable invasions. This capacity involves three factors: 1) an awareness of high-risk species and the likely pathways for their entry; 2) vigilant monitoring of those pathways; and 3) the capacity to respond quickly to new introductions. Florida is deficient in all three respects.³⁴

Florida could improve its rapid response capabilities by investing in a surveillance program that targets high-risk areas, such as the perimeter of the Miami airport and other ports of entry.³⁵ An ideal program would connect these discrete monitoring networks to a widely available statewide database or mapping system that could improve statewide coordination and better inform policy decisions regarding control and maintenance.³⁶ The system could quickly disseminate surveillance data to regional rapid strike forces, which could be mobilized to eliminate new infestations before they become unmanageable.³⁷

Achieving the necessary improvements in monitoring and rapid response capacity will require extensive interagency coordination. Funding is a critical issue.³⁸ Because the need for emergency funding is unpredictable, a dedicated funding source that does not require annual appropriations (such as a contingency trust fund) would be ideal.³⁹

CONTROL AND MANAGEMENT

Control and management measures are necessary if prevention efforts fail and invasive species manage to establish themselves within a state. Florida has a relatively well-developed framework for control and management, especially for invasive plants on public lands. However, Florida's efforts are limited by funding shortfalls and legal limitations. Most significantly, the government lacks adequate authority to control invasive plants on private lands. The following recommended actions would help Florida enhance the scope and effectiveness of its current programs to better control established populations of invasives in the state.

5) DEVOTE ADEQUATE RESOURCES TO PUBLIC LANDS MANAGEMENT.

Loxahatchee National Wildlife Refuge, located in Palm Beach County, encompasses the northernmost remnant of the original freshwater Everglades. With more than 220 square miles of Everglades habitat, visitors may spot an American alligator or one of more than 250 species of birds found here in any given year. However, two species are impossible to miss—invasive melaleuca trees and Old World climbing fern. Together, they have overrun more than eighty percent of the refuge, choking out native plant species and threatening wildlife that depend on the habitat for nesting and foraging. Loxahatchee's FY 2000 Comprehensive Conservation Plan estimated that \$3 million per year would be needed to reduce this infestation to maintenance control levels.⁴⁰

Loxahatchee's situation demonstrates the scale of the invasive species problem in South Florida—one site, two species, three million dollars per year. By way of comparison, there are more than 600 participants in FDEP's Upland Invasive Plant Control Program, and approximately 130 new projects funded each year. Put in this perspective,

the Upland Program’s annual budget of approximately \$7 million is merely a drop in the bucket.⁴¹ FDEP’s aquatic program fares a little better, with nearly \$24 million of annual state funding. However, federal support for the aquatic program has been steadily decreasing for several years.⁴²

Florida needs federal help. Congress occasionally appropriates special funds to bring particular infestations under control.⁴³ However, effective invasive species management requires both initial control and ongoing maintenance, and the federal government has failed to create the type of permanent funding source needed.⁴⁴

Take advantage of natural partnerships—and formalize them

Florida’s public land managers realize that they cannot afford to wait for help from Congress, and they have begun to take creative interim actions. Interagency partnerships allow local, state, and federal land managers to share costs, specialize in their strengths, and prioritize resources for the most critical problems.⁴⁵ At this point, however, partnering takes place on an ad hoc basis, and is very dependent on individual personalities. Efforts to streamline and formalize the partnering process could lead to more effective marshaling of limited state resources.

Use other government programs creatively

A number of other federal programs offer opportunities for creative implementation of invasive species control projects. The Corps of Engineers’ CAP authorities⁴⁶ can be used to implement restoration projects with significant invasive species components. NRCS Conservation Programs and the Fish and Wildlife Service’s Partners for Fish and Wildlife Program (PFFW) can also be used strategically to fund invasives control work, especially on private lands.⁴⁷ Finally, CERP offers tremendous untapped authority and resources for systematic invasives species control work in furtherance of the greater South Florida Ecosystem Restoration goals. Focused and

purposeful use of these and other federal programs and authorities could help narrow the gap between Florida’s needs and the resources currently available for invasive species control.⁴⁸

6) REFRAME UPLANDS AUTHORITY TO REACH PRIVATE LANDS.

Invasive species are unaffected by political boundaries—they move with ease across and between private and public lands alike. However, state and federal legal authorities for upland invasive plant control in Florida do not reflect this reality. FDEP’s Upland Program grants are earmarked for projects on public conservation lands, and federal agencies usually take action only within their own jurisdictions.⁴⁹ The gaps in authority seriously undermine the effectiveness and efficiency of overall control efforts. Infestations on abutting private lands often serve as reservoirs of seeds and spores beyond the reach of control efforts. Therefore, invasive species managers can spend millions cleaning up public conservation lands without ever eliminating the root source of the problem.⁵⁰

Other programs are quite different. FDEP has specific authority to enter private property to engage in aquatic plant control activities.⁵¹ FDEP’s Aquatic Plant Control Grant Program is ordinarily limited to waters with public boating access.⁵² However, a key provision of FDEP’s rules expands the agency’s jurisdiction by also allowing funding for waters “which might adversely impact sovereignty lands.”⁵³ APHIS and FDACS are also able to enter private property and eradicate pests under their plant pest and noxious weed authorities.⁵⁴ Similarly, the Animal Damage Control Act apparently creates broad federal authority for control of invasive vertebrate animals on both public and private lands.⁵⁵

Reframing authority to reach private lands

Both Congress and the Florida Legislature have the power to protect public lands from invasive species through the regulation of private property.⁵⁶

However, as demonstrated by FDAC's Citrus Canker Eradication Program, regulations affecting private land are often controversial (*see sidebar*). Intrusive regulations risk public backlash.⁵⁷ However, effective authorities need not be intrusive. A judicious exercise of regulatory authority, combined with an emphasis on public education, can help avert potential problems. Grants or incentive payments to assist private landowners with invasive species control would also be helpful.⁵⁸

Expanded authority should be accompanied by a wise allocation of resources. The restoration and protection of native ecosystems is most valuable in protected natural areas and less important in heavily modified environments. Policymakers could take a "buffer zone" approach, modeled after FDEP's Aquatic Plant Control Program or the new Palm Beach County Invasive Vegetation Removal Incentive Program, and authorize invasive species control on private lands "which might adversely impact" public lands. At an even more sophisticated level, the law could create a concentric model with a protected natural area in the center, and decreasing levels of monitoring and control towards the periphery. The buffer zone and concentric approaches both recognize that when resources are limited, invasive species control should be targeted to the most critical areas.

RESEARCH

7) REFOCUS RESEARCH.

Develop capacity to predict the potential invasiveness of exotic species

The National Research Council recently found that "[t]here are currently no known broad scientific principles or reliable procedures for identifying the invasive potential of plants, plant pests, or biological control agents in new geographic ranges...."⁵⁹ This shortcoming has slowed the adoption of an effective pre-screening process, and

is sometimes used as cover for a deregulatory agenda. Development of a tool to predict whether introduced exotic species will be invasive or benign is essential to strong invasive species policy. An ideal predictive tool would be adaptable to regional conditions, and could be embedded into a mandatory pre-screening process for proposed exotic imports.⁶⁰

Develop tools to accurately measure the full ecological costs of individual invasive species

Research is also needed on tools to estimate the true economic and ecological costs of individual exotic species. Florida's current gridlock on exotic animals can be explained, in part, because it is much harder to assess the ecological impacts of animals (such as the exotic fish in the canals surrounding Everglades National Park) than it is to measure the economic impact of an agricultural weed. An accurate measure of ecological costs would help resolve regulatory conflicts and could lead to more responsible private sector decisions regarding exotics.⁶¹

Streamline biocontrol research and the regulatory approval process

The development and release of biocontrol agents will likely remain an essential element of any future strategy for managing invasive species in Florida. Therefore, it is essential that research efforts be supported to develop new biocontrol agents as quickly as possible.⁶² Recent biocontrol agents are successfully controlling infestations of melaleuca, but the agents took nearly ten years to develop and be approved.⁶³ Florida cannot afford to wait ten years for new invaders like Old World climbing fern.

One factor contributing to these delays is the length of time needed for the regulatory approvals of new biocontrol agents. Releases of new agents require a permit from APHIS-PPQ.⁶⁴ APHIS's permitting decision is informed by an interagency review team of researchers called the Technical Advisory Group for Biological Control Agents of Weeds (TAG). TAG members examine new

biocontrol applications and suggest inclusions of certain test plants, identify conflicts of interest, and assess risks associated with a release. Other environmental documentation, including environmental impact statements and Endangered Species Act consultations, are often required. All told, the current approval process consists of ten steps that may take several years.⁶⁵

Streamlining regulatory review could significantly reduce the length of time needed to disseminate new biocontrol agents into the field. However, the emphasis needs to focus on streamlining and not decreasing the overall level of scrutiny. APHIS should search for opportunities that make the administrative process quicker and more efficient, but should be careful not to sanction the release of a biocontrol agent that could become a harmful invasive itself.

EDUCATION, OUTREACH, AND PUBLIC PARTNERSHIP

8) RAISE AWARENESS IN THE PUBLIC AND BEYOND.

Regulation is only one part of a comprehensive invasive species policy—education and outreach are also critical elements. Invasive species policies are affected by many different social, cultural, psychological, and commercial realities. For example, a natural “green is good” mentality can often cause setbacks or delays for government plans to eradicate invasive plants, especially on private lands.⁶⁶ A general lack of awareness leads to problems that could have easily been prevented, such as the release of unwanted (and potentially invasive) pets into the wild. Education holds two primary values. It can raise support for and increase compliance with government regulations, and can also shape private conduct to prevent problems and reduce the need for regulations in the first place. These qualities make education an essential foundation of a strong invasive species policy.

Florida has several good models for education and outreach. The Florida Yards and Neighborhoods Program is a traditional agricultural extension program that raises residents’ awareness of invasive species and other environmental issues associated with home and landscape management.⁶⁷ The Florida Exotic Pest Plant Council (FLEPPC) publishes a non-regulatory list of harmful exotic plants that has been successful at raising awareness and guiding voluntary cultivation decisions in both the public and private sectors. The Areawide Management Evaluation of *Melaleuca quinquenervia* (TAME Melaleuca) is a collaborative multi-agency project to develop a sustainable and integrated melaleuca control program through partnerships with public agencies and private land managers.⁶⁸ Local efforts, such as the City of Gainesville’s G.E.A.R. Program,⁶⁹ are particularly effective ways to encourage citizens to take an active role in the stewardship of local natural resources. Invasive species management would benefit from efforts to build on these successful programs and seek out additional opportunities to educate the public and make them full partners in the fight against invasives.

Effective education and outreach must extend beyond the general public to reach business and professional communities. These efforts should seek to engage industries that trade in exotic species and professionals whose work involves exotics.⁷⁰ For example, FLEPPC and The Nature Conservancy’s work with the Florida Nurserymen and Growers Association is helping to bridge misunderstandings, and may eventually lead to new industry practices to reduce the potential for dissemination of invasive species.⁷¹ Lastly, lawmakers must be educated about the threats of invasive species, so that an effective legal framework may someday become a reality.⁷²

9) EMPHASIZE INCENTIVES FOR PRIVATE ACTION.

In addition to education, the government should seek to enroll private action in invasive species

prevention and control through the use of incentives. Incentives may take many forms, including technical assistance, tax breaks, reimbursements for private control work, and federal cost-share programs. The Allapattah Ranch Project in Martin County, Florida is a promising model. The project, one of the largest Wetland Reserve Program (WRP) projects in the nation, will restore and preserve approximately 15,370 acres of agriculturally impacted wetlands and associated upland buffer habitat just east of Lake Okeechobee. The success of this project will rely on an intensive initial effort to remove and treat invasive exotic plants, such as Brazilian pepper and Old World Climbing Fern, and follow-up management to maintain native plant communities.⁷³

There are opportunities in Florida to use these types of federal conservation programs to address invasive species on private lands. Florida has actually been a leading recipient of federal cost-share dollars.⁷⁴ These programs, however, are not earmarked exclusively for invasive species, and proposals must compete with other habitat conservation projects for funding. This sometimes works against invasive species proposals, because their high costs deter officials interested in distributing funds to the largest possible number of projects.⁷⁵ Greater federal support for these types of conservation programs, or earmarking some portion of these funds for invasive species projects, would help preserve the value of these incentives for invasive species management.

The Florida Forever Act recognizes that “acquisition is only one way” to achieve the goals of the Act, and encourages the development of “creative partnerships between governmental agencies and private landowners...to bring environmentally sensitive tracts under an acceptable level of protection at a lower financial cost to the public.”⁷⁶ These “creative partnerships” can and should happen at all levels of government. For example, Palm Beach County administers a cost-share program for voluntary removal of listed invasive plants, and a canopy replacement program

to help minimize the loss of canopy associated with the removal of prohibited vegetation.⁷⁷ Florida law provides for conservation easements and includes a tax incentive when the covenant extends ten years or more.⁷⁸ The Allapattah Ranch Project offers a strong model for the creative use of these kinds of legal tools that can help keep large tracts of Florida land protected and free of invasive species.

STRATEGIC PLANNING AND COORDINATION

10) RECONCILE THE STATE AND FEDERAL PLANNING PROCESSES.

In general, federal and state agencies work well together in Florida-especially with regard to joint invasive species control efforts. However, the broader strategic planning processes remain somewhat disconnected. There appear to be two parallel planning efforts: the first composed of state agencies and centered around the State Invasive Species Working Group (ISWG), the second led by interagency task teams assembled under the South Florida Ecosystem Task Force (SFERTF).⁷⁹

These groups overlap, but have disparate orientations. ISWG is composed exclusively of state members. Federal participation is invited, but only on an “informal” and nonvoting basis. The SFERTF Task Teams involve both state and federal members, and are affiliated with the South Florida Ecosystem Restoration. Both claim to be producing strategic plans for invasive species prevention, control, and management in Florida.⁸⁰

Both groups have made excellent recommendations for improving invasive species management in Florida. Still, strategic plans are intended to consolidate, coordinate, and prioritize competing policies and set a longer-term strategy in motion. This is impossible with multiple plans. Thus, the current split has the potential to frustrate and delay implementation of the many solid ideas in both plans. Florida needs to reconcile the

parallel planning processes and reach agreement on a single strategic plan.

Reaching common ground

In order to reach common ground, state and federal players will have to explore the reasons for the current split. There has been some tension underlying the state and federal relationship in Florida for many years. Some frustrations are still simmering from the Everglades water quality lawsuit brought against the state more than fifteen years ago. The root causes, however, may stem from slightly divergent core philosophies on exotic species management.

The current dispute surrounding feral hogs is emblematic of the deeper issues. Feral hogs are not native to Florida, though they have existed there for several hundreds of years. The federal government, citing the significant habitat damage caused by hogs, generally views them as invasive species that should be controlled or eradicated. The state, however, cites the long-term presence of hogs in Florida and their value to sport hunters and the Florida economy in arguing that hog populations should be managed, but not eradicated.⁸¹ It would be a gross simplification to label the federal approach to exotics as “purist” and the state approach as “pragmatic” or perhaps “protectionist,” but there is a grain of truth to this caricature.

Several misunderstandings and communication failures overlay these deep tensions and have perpetuated the federal-state rift. State managers sometimes feel that there has been too much

planning and not enough on-the-ground action. Some feel that federal strategic planning efforts have not given adequate consideration to an already workable state control strategy, and are concerned that the federal strategic planning is simply “reinventing the wheel.”⁸² The federal government, for its part, feels frustrated by the state’s apparent lack of willingness to cooperate. ISWG’s decision to exclude non-state entities from full membership is a considerable stumbling block. Potential federal partners have little incentive to join the state process if they will simply be subordinate to the state group.

The rift between federal and state strategic planners should not be overstated, and it is by no means insurmountable. The community of invasive species “specialists” in Florida is relatively small. Local, state, and federal employees work together often and most have extremely good working relationships. All of these professionals have a large stake in the preservation and restoration of Florida’s natural heritage and are deeply concerned about the threats of invasive species. No one wants to delay the process.

With a little more time and better communication, a solution to the current impasse would likely occur naturally. Unfortunately, time is in short supply. With each passing month, invasive species tighten their grip on Florida. A single, forward-looking strategic planning process that provides for local, state, and federal participation on an equal footing is within reach, and could dramatically drive forward Florida’s invasive species policy at this critical time.

¹ See *Harmful Invasive Species*, Chapter 1, note 7, *supra*.

² In this regard, an ideal invasives approach would follow the Lacey Act model rather than the Plant Protection Act. See discussion of the PPA’s preemption provision (7 U.S.C. § 7756) in Chapter 2, *supra*.

³ See, e.g., 7 U.S.C. § 7702 and F.S. § 581.011.

⁴ Invasive species managers in Hawaii are feeling the effects of this shortcoming first-hand as they struggle to eradicate the coqui frog, a native of Puerto Rico that has infested the islands.

⁵ See Article IV, Section 9 of the Florida Constitution.

⁶ See FS § 372.265 (Regulation of Foreign Animals), which prohibits the

import or release of “any species of the animal kingdom not indigenous to Florida” without a permit, and authorizes the agency to “issue or deny such a permit upon the completion of studies of the species made by it to determine any detrimental effect the species might have on the ecology of the state.”

⁷ See FAC § 68A-6.002 (Categories of Captive Wildlife); FAC § 68A-23.008 (Non-Native Aquatic Species).

⁸ Overlapping authority also results in unnecessarily burdensome requirements. For example, persons seeking to move federally regulated noxious weeds across state lines require a permit from APHIS. Since the plant may also be subject to state regulations, the agency checks with the

destination state on a case-by-case basis to determine whether to approve the permit. A Florida regulator explained that this is a big burden on both regulators and industry. He suggested implementing blanket state prohibitions that are known in advance (e.g. “All sales of *Salvinia* to the state of Texas are prohibited”), rather than the current case-by-case evaluation of individual permits.

⁹ See FS § 581.145(3). Water hyacinth can only be cultivated in Florida for export outside the United States. However, critics have noted that sales to Canada were primarily to mail-order businesses that in turn shipped the species worldwide—including to the United States and Florida. See *Strangers in Paradise*, Chapter 1, note 1, *supra*. FDEP rules have a similar loophole. FAC § 62C-52.011(2) permits Class II Prohibited Aquatic Plants to be cultivated in Florida nurseries for sale out of state.

¹⁰ This amendment to FS § 581.091 was introduced as a rider on a 2002 Agricultural Bill by Florida State Representative Richard A. Machek (D-District 78), with the full support of the Florida Nurserymen and Growers Association. The provision is discussed in Chapter 3, *supra*.

¹¹ See FS § 369.25(3)(b). This has resulted in some tension between the agencies over proposed listing decisions, especially over plants with potential agricultural or commercial value. Recent conflicts involved the proposed listing of carrotwood and Chinese tallow, two highly invasive (but popular) ornamental tree species.

¹² See *Harmful Invasive Species*, Chapter 1, note 7, *supra*.

¹³ This would preserve the benefits of the current multiple-agency approach, which brings different perspectives and expertise to the invasives issue as well as additional funding, personnel, and equipment.

¹⁴ For example, the Comprehensive Everglades Restoration Plan (CERP) opens the door for the U.S. Army Corps of Engineers to assume a position of leadership in this effort. A decision to incorporate and enhance invasive species management through CERP would be consistent with the President’s Executive Order and could help ensure Congress’s goals of “restoring, preserving, and protecting the South Florida ecosystem” are eventually achieved.

¹⁵ See *Making a List: Prevention Strategies for Invasive Plants in the Great Lakes States*, ELI (2004) for more details on the listing process.

¹⁶ See *Halting the Invasion*, Chapter 1, note 11, *supra*, for an overview of state programs using a clean list approach.

¹⁷ See Minn. Stat. Ch. 84D.

¹⁸ See Minn. Rule §§ 6216.0250-6216.0270. Unlisted species are legal to possess, sell, buy, and transport, but they may not be released into a free-living state until an application has been filed with the Department of Natural Resources and the agency has classified the species on one of the state’s three lists. See Minn. Rule § 6216.0290.

¹⁹ For more discussion of the Minnesota program, see *Making a List*, note 15, *supra*.

²⁰ FWC regulations prohibit the “transport into the state,” introduction, or possession “for any purpose that might reasonably be expected to result in liberation into the waters of the state” of any non-native aquatic species without having secured a permit from FWC except for species on a clean list (only two are currently listed). See FAC § 68A-23.008(1)

²¹ FAC § 68A-23.008.

²² See FAC § 5B-57.010. The regulations direct the Vice President for Agricultural and Natural Resources of the University of Florida to recommend two faculty members, one specializing in research on production agriculture and the other on natural resources, to the department to serve on the committee. A representative from the Botany Section of the FDACS Bureau of Plant and Apiary Inspection will represent the department. All reviews must also provide for public input. *Id.*

²³ The Miami Plant Inspection Station is the busiest in the country, with an estimated annual volume of over 550 million plants. Nearly 80% of all U.S. plant inspections are performed at the Miami Station. Inspectors report that they attempt to screen at least one box from each incoming shipment and

100% of “wild collected” plants.

²⁴ These officials are responsible for nearly 12,000 shipments of wildlife that pass through the Port of Miami each year (85 percent of which are live animals for the pet trade). State enforcement of wildlife law is similarly stretched. FWC has only twelve law enforcement inspectors to cover all of Florida’s ports, pet stores, and game farms.

²⁵ This move is in line with CBP’s new “one face at the border” concept, which moves away from a multiple inspector approach towards having one inspector who is supported by specialists with expertise.

²⁶ Secretary Hutchinson expressed these sentiments in an address to the National Association of State Departments of Agriculture on February 3, 2003.

²⁷ Early signs are not encouraging. According to some concerned observers, DHS inspectors at the Port of Miami no longer inspect cut flowers for hitchhiking plant pests. Imports of Spanish and Italian tiles, which are a favorite for stowaway insects and snails, are also no longer inspected.

²⁸ See *Pest Exclusion Advisory Committee (PEAC) Report*, findings of the Exclusion Subcommittee (March 2001).

²⁹ APHIS PPQ has established a Smuggling Interdiction and Trade Compliance (SITC) program to provide a national focus for smuggling and trade compliance issues. The Florida Interdiction and Smuggling Team (FIST) has operated to identify and close smuggling pathways in the state since 1998.

³⁰ 7 U.S.C. § 7711(d).

³¹ 7 C.F.R. § 351.3.

³² The Commerce Clause of the U.S. Constitution grants to Congress the power to regulate international and interstate trade. Therefore, the Supreme Court regularly strikes down state laws that discriminate against or unreasonably burden such commerce. However, state regulations that serve a legitimate local purpose and which cannot be achieved by nondiscriminatory means may be upheld. In *Maine v. Taylor*, 477 U.S. 131 (1986) the Supreme Court upheld a complete ban on the importation of live bait-fish imposed by the State of Maine on grounds that there was no reliable non-discriminatory alternative means for the state to protect its citizens and natural resources from the risks of imported parasites and invasive species.

³³ This is especially true in Florida, because FDAC and FDEP do not have authority to inspect foreign imports. In the past, APHIS notified the state when border inspectors identified a state-listed pest, but it is not yet clear whether CPB will continue this practice. The creation of formal communication channels between federal border inspectors and state regulatory agencies would improve regulatory efficiency and help state agencies prevent state-regulated pests from slipping through the border.

³⁴ The need for enhanced early warning and emergency response capacities in Florida was discussed by the PEAC Detection and Response subcommittee in the *PEAC Report*.

³⁵ FDEP, through its annual surveys of 450 public waters, has been very effective in identifying new infestations of invasive aquatic plants. Additional monitoring programs are needed for other classes of invasive species.

³⁶ USGS’s Florida Integrated Science Center (FISC) in Gainesville has a Non-indigenous Plants and Animals Program that is beginning to track the status of introduced aquatic organisms for dissemination for research, management, and education. See http://cars.er.usgs.gov/Nonindigenous_Species/nonindigenous_species.htm. Similar efforts are now needed in the terrestrial context.

³⁷ A rudimentary response capacity already exists in the form of Exotic Plant Management Teams (EPMT’s) established under FDEP’s Upland Invasive Plant Management Program. An improved rapid strike force could perhaps be developed from this foundation.

³⁸ For example, APHIS is becoming more constrained in its ability to fund emergency eradication of emergent pests. Although the agency has no

dedicated source of funding for emergencies, the Secretary of Agriculture has authority to transfer funds from the Commodity Credit Corporation (CCC) to conduct emergency eradications. However, the OMB is tightening restrictions on these types of transfers, and proposals to increase the states' share of APHIS emergency program costs have been received negatively. Without new sources of emergency funding, APHIS will have to wait for congressional appropriations before responding to new pest infestations. This time-consuming process could result in missed eradication opportunities, and would represent a serious gap in the federal government's prevention network.

³⁹ Sec. 5 of H.R. 2310, the Species Protection and Conservation of the Environment Act (SPACE), creates a federal program to assist local and State agencies in rapidly responding to immediate invasive species threats.

⁴⁰ See *Loxahatchee National Wildlife Refuge Comprehensive Conservation Plan* (2000), available at <http://loxahatchee.fws.gov/CCP/index.asp>.

⁴¹ In addition, the relatively large federal allocation at Loxahatchee means that other Refuges (e.g., Hobe Sound NWR) are not receiving the allocations that they require to address invasives.

⁴² The Jacksonville District of the Corps of Engineers received only \$3.4 million in RAG funding in 2003. The APC program hasn't been funded since 1996.

⁴³ For example, a special Congressional appropriation of \$4 million in 2004 will permit treatment of exotics on an estimated 25,000 to 35,000 acres within Loxahatchee NWR.

⁴⁴ Several pending invasives bills would authorize additional federal expenditures for invasive species control and management on public lands. H.R. 119 (The Harmful Invasive Weed Control Act) and S. 144 (The Noxious Weed Control Act of 2003) would authorize \$100 million per year to establish a national program in the Department of Interior to provide financial assistance through states for invasive weed control on public and private lands. Senator Akaka (HI) is also preparing to introduce a bill entitled "The Public Land Protection and Conservation Act" which would create a grant program for control and continuing management of invasive species on federal and adjacent private lands.

⁴⁵ One promising example is a cooperative agreement between the National Park Service and FDEP to seek out cost-sharing and labor partnerships for invasive species control throughout all eleven National Park Service units in Florida.

⁴⁶ The Corps' CAP authorities are discussed in Chapter 2, *supra*.

⁴⁷ Although grants under the state Uplands Invasive Plant Control Program are strictly limited to public lands, FDEP and USFWS have discovered a creative way to leverage DEP upland money with the PFFW Program to achieve some measure of control in private "buffer zones." Under this arrangement, the state Uplands Program pays for control work within a federal wildlife refuge while USFWS and adjacent private landowners agree to control invasives under the PFFW Program.

⁴⁸ A recent Memorandum of Understanding between the Nature Conservancy and Corps of Engineers offers a model for others to follow. Under the MOU, TNC and the Corps have pledged to work together to promote the conservation of biological diversity within the context of the Corps' civil works and regulatory missions. This will involve seeking out opportunities to use Corps authorities, such as the CAP program, to address invasive species and other threats to healthy habitats. See Memorandum of Understanding Between the U.S. Department of the Army, the U.S. Army Corps of Engineers, and The Nature Conservancy (12/14/2000).

⁴⁹ See discussion at Chapters 2 and 3, *supra*.

⁵⁰ Florida's preemption of new local invasives programs makes this gap even more significant, because local programs are one of the few ways private landowners can be required to keep their properties free from invasive species.

⁵¹ See *FS* § 369.20(4)(d). Although FDEP has the statutory authority to enter private lands for aquatic plant control, the agency devotes the vast majority of its resources to aquatic plant control in public waters.

⁵² See *FAC* § 62C-54.0035 (Waters Eligible and Eligibility Criteria for Aquatic Plant Management Funds). The FDEP aquatics program is described in Chapter 3, *supra*.

⁵³ See *FAC* § 62C-54.0035.

⁵⁴ See, e.g., *FAC* § 5B-57.006.

⁵⁵ See discussion at Chapter 2, *supra*.

⁵⁶ The federal Property Power gives Congress the authority to "prohibit the doing of acts upon privately owned lands that imperil [federal property]." See *U.S. v. Alford*, 274 U.S. 264 (1927) (broadly interpreting the Property Clause of the U.S. Constitution (Article IV, Section 3, Clause 2)). State power to regulate private property derives from the state's general police power. See *Golden v. McCarty*, 337 So. 2d 388, 390 (Fla. 1976) ("all ... property rights are held subject to the fair exercise of the police power").

⁵⁷ For example, requiring private citizens to remove invasives at their own expense may be perceived as unfair, especially if the infestations are not the result of private action. In certain circumstances, regulations requiring the absolute destruction of private property may require compensation. See *Corneal v. State Plant Board*, 95 So.2d 1, 4 (Fla. 1957) ("absolute destruction of property is an extreme exercise of the police power and is justified only within the narrowest limits of actual necessity, unless the state chooses to pay compensation").

⁵⁸ See, e.g., the Aldo Leopold Native Heritage Grant Program proposed in the Species Protection and Conservation of the Environment Act, H.R. 2310, Sec. IV.

⁵⁹ See *Predicting Invasions of Nonindigenous Plants and Plant Pests* (National Academies Press, 2002).

⁶⁰ There have been several early attempts to develop biological risk assessments for exotics. See, e.g., Weed-Initiated Pest Risk Assessment Guidelines for Qualitative Assessments (APHIS, 2002) (available at <http://www.aphis.usda.gov/ppq/weeds/Wragui5-2.pdf>); Generic Non-indigenous Aquatic Organisms Risk Analysis Review Process (ANSTF, 1996) (available at <http://www.anstaskforce.gov/gennasrev.htm>); Risk Assessment for the Import and Keeping of Exotic Vertebrates in Australia (Australia Department of Agriculture, Fisheries, and Forestry, 2003) (available at http://www.affa.gov.au/corporate_docs/publications/pdf/rural_science/lms/feral_s/risk_assess_book.pdf). While none of these tools are perfect, Australia's system for assessing exotic vertebrates is a noteworthy model.

⁶¹ For example, Florida's nursery industry has recommended to their membership not to propagate, use, or sell a suite of 45 species whose ecological costs are clearly greater than their economic value. Better information on the true ecological costs of exotic species could help support further responsible decisions.

⁶² Researchers at the ARS Invasive Plant Research Lab in Fort Lauderdale are actively engaged in looking for new biocontrol agents for invasive plants in Florida.

⁶³ The District began funding USDA investigations into melaleuca biocontrols in 1991. Australian weevil was released in 1997 and Australian psyllid released in spring of 2002. Both have been successful in reducing melaleuca infestation levels.

⁶⁴ See Sec. 412 of the Plant Protection Act (7 U.S.C. § 7712) (providing the Secretary of Agriculture with the authority to "prohibit or restrict the importation, entry, exportation, or movement in interstate commerce of any...biological control organism").

⁶⁵ Chapter three of USDA's *Reviewers Manual for the Technical Advisory Group for Biological Control Agents of Weeds* describes this process: 1) Early Input; 2) Permits for U.S. Introduction; 3) Maintain the Permit for Importation; 4) Environmental Documentation in Support of Permit for Release; 5) TAG Recommendation; 6) Permit for Release; 7) Section 7 Consultation; 8) Public Comment; 9) Environmental Protection Agency; 10) Interstate Movement of Approved Weed Biological Control Agents. See <http://www.aphis.usda.gov/ppq/permits/tag/tag.pdf>.

⁶⁶ Exotic animals raise a number of additional delicate issues. For example, feral cats are technically "invasive" and can have a devastating impact on

native songbird populations. However, potential government responses must consider the fact that they are also sentient beings that people care about deeply. A straight “eradication” plan will not likely be acceptable.

⁶⁷ FYN is directed by the University of Florida IFAS Extension. The program offers a handbook on environmentally friendly landscaping that emphasizes the importance of native species in Florida’s landscapes. See <http://hort.ufl.edu/fyn/hand.htm>.

⁶⁸ TAME is administered through the USDA Agricultural Research Service’s Areawide Pest Management Initiative. Areawide projects seek to demonstrate the effectiveness of an integrated pest management (IPM) approach for controlling invasive species. They are funded for up to five years and then carried on by cooperators, growers, and land owners. For more information on TAME, see <http://tame.ifas.ufl.edu/>.

⁶⁹ G.E.A.R. (or Gainesville Ecosystems at Risk) is an organization created by the Nature Operations Division of the City of Gainesville for the purpose of educating Gainesville residents about threats to the proper functioning and vitality of the area’s natural and native ecosystems. Invasive species are a primary focus of the program.

⁷⁰ For example, landscape architects are often not aware of the invasive potential of exotic species they include in their plans. Greater education (through, for example, professional society conventions or training courses offered for continuing education credit) could result in more ecologically sound landscape plans.

⁷¹ Over the years, Florida’s nursery industry has lobbied strongly against invasive species regulations, based partly on fears that the state would not distinguish between harmful invasive species and other commercially valuable exotic species. However, the industry now seems ready to support a regulatory system that is fair, transparent, and based on science.

⁷² The number of invasives-related bills currently pending in Congress demonstrates that some progress is being made here.

⁷³ See <http://www.fl.nrcs.usda.gov/programs/flwrp.html>.

⁷⁴ Florida pocketed \$27 million of WRP funds and \$8.5 million in EQIP funds in FY 2002. In 2003, eight of Florida’s eleven DOI Challenge Cost-Share projects involved invasive species components, bringing in more than \$2.1 million for invasive species control. DOI’s new Landowner Incentive Program (LIP) represents a brand new source of cost-share resources that can be used for invasive species management and habitat restoration.

⁷⁵ For example, FDACS did not select invasive species control as a focal area for 2004 Forest Land Enhancement Program (FLEP) funding because invasive species control would have eaten up all of the program funding on just a couple of projects.

⁷⁶ FS § 259.105(2)(b).

⁷⁷ For more information on these programs, contact Palm Beach County’s Department of Environmental Resources Management (DERM) (www.co.palm-beach.fl.us/erm).

⁷⁸ Fla. Stat. Ann. §§ 704.06, 193.501, 193.501(3)(a). Miami-Dade County has a similar property tax credit incentive program. A natural area management plan that includes exotics species control is required to qualify for the credit.

⁷⁹ The Noxious Exotic Weed Task Team (NEWTT) and the Florida Invasive Animal Task Team (FIATT) are both pursuing strategic planning objectives for invasive species.

⁸⁰ See, e.g., the ISWG Statewide Invasive Species Strategic Plan (2002) and NEWTT’s Statewide Strategic Plan for Managing Florida’s Invasive Exotic Plants (*Weeds Won’t Wait*) (2001).

⁸¹ FWC employs a variety of approaches to the management of wild hogs, depending in part on the desires of the landowner with whom it partners.

⁸² Some state actors are also hesitant to participate in federal planning because they feel like they “got burned” the last time they tried it. In the initial stages of CERP, the Army Corps initiated a public process to set priorities for critical restoration projects. Several state agencies participated and invasive species control was recommended as the number one priority. The state participants expected the process to result in significant federal funds for invasive species control through CERP. However, for many reasons, this never materialized.

CHAPTER 5: CONCLUSION

Invasive species have always existed, but awareness of the “invasive species issue” as a discrete matter of environmental policy is relatively new. As with other emerging issues, it is not surprising that invasives are currently addressed with a patchwork of unconnected laws. However, the scale of the invasive species problem in Florida (and across the nation) demonstrates that changes are needed. This report calls for a consolidation and reorganization of invasive species law to create a holistic approach focusing on the prevention of new invasions.¹ The eventual framework should preserve a role for state and

local authority, and should be built from an ecological understanding of biological invasions.

Until this holistic vision is achieved, it will be essential for all agencies to exercise the full extent of their existing authority to prevent and respond to invasives.² This will require a new mindset and creative application of existing law. Florida is particularly challenged by invasive species, but it has a wealth of federal, state, and local experts, and several established agencies with the capacity and expertise to address these issues. The recommendations in this report are all steps they can take to help end the invasion.

¹ See Recommendation 1, *supra*.

² See discussion of Executive Order 13112 and its mandate for federal agencies in Chapter 2, *supra*.

GLOSSARY

ADCA	Animal Damage Control Act	FDA	Federal Food and Drug Administration
AHPA	Animal Health Protection Act of 2002	FDACS	Florida Department of Agriculture and Consumer Services
ANS	Aquatic Nuisance Species	FDCA	Federal Food, Drug, and Cosmetic Act
APC	Aquatic Plant Control	FDEP	Florida Department of Environmental Protection
APHIS	Animal and Plant Health Inspection Service	FIATT	Florida Invasive Animal Task Team
ARS	Agricultural Research Service	FICMNEW	Federal Interagency Committee for the Management of Noxious and Exotic Weeds
ASPEA	Alien Species Prevention Enforcement Act of 1992	FLEP	Forest Land Enhancement Program
CBP	Customs and Border Protection	FLEPPC	Florida Exotic Pest Plant Council
BIPM	Bureau of Invasive Plant Management	FLPMA	Federal Land Policy and Management Act
BRS	Biotechnology Regulatory Service	FSP	Forest Stewardship Program
C&SF	Central and Southern Florida Project	FWC	Florida Fish and Wildlife Conservation Commission
CAP	Continuing Authorities Programs	IFAS	University of Florida Institute of Food and Agricultural Sciences
CARL	Conservation and Recreation Lands Program	IPPC	International Plant Protection Convention
CCC	Commodity Credit Corporation	ISWG	Invasive Species Working Group
CERP	Comprehensive Everglades Restoration Plan	LIP	Landowner Incentive Program
CITES	Convention on International Trade in Endangered Species	NEWT	Noxious Exotic Weed Task Team
CTAP	Conservation Technical Assistance Program	NISA	National Invasive Species Act of 1996
DHS	Department of Homeland Security	NISC	National Invasive Species Council
DOI	U.S. Department of the Interior	NMFS	National Marine Fisheries Service
DPI	Division of Plant Industry	NOAA	National Oceanic and Atmospheric Administration
EPA	U.S. Environmental Protection Agency	NRCS	Natural Resources Conservation Service
EQIP	Environmental Quality Incentives Program		
ESA	Endangered Species Act		
FAC	Florida Administrative Code		

PEAC	Pest Exclusion Advisory Committee
PFFW	Partners for Fish and Wildlife Program
PPA	Plant Protection Act of 2000
PPQ	Plant Protection and Quarantine
RAG	Removal of Aquatic Growth Program
RECOVER	Restoration Coordination and Verification
RHA	Rivers and Harbors Act
SFERTF	South Florida Ecosystem Restoration Task Force
SFWMD	South Florida Water Management District
SPS Agreement	WTO Agreement on the Application of Sanitary and Phytosanitary Measures
SWIM	Surface Water Improvement and Management Act
TAG	Technical Advisory Group for Biological Control Agents of Weeds
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WCAs	Water Conservation Areas
WHIP	Wildlife Habitat Incentives Program
WRDA	Water Resources Development Act
WRP	Wetlands Reserve Program
WTO	World Trade Organization

