PROTECTING FLORIDA'S WATERS AND WILDLIFE THROUGH THE ENDANGERED SPECIES ACT:

WHITE PAPER

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EXECUTIVE SUMMARY

This paper explores the relationship between wildlife law, water law and water management, specifically with respect to the U.S. Endangered Species Act ("ESA" or "Act") and implications for restoration of America's Everglades. Many of the over 60 federally listed species in south Florida are considered wetland dependent from Everglade snail kites, to wood storks, panthers and manatees, and are affected throughout all or a part of their life cycle by water management decisions. Species nesting on Florida beaches, such as shore birds and sea turtles, are suffering the consequences of rising waters along the coastline due to climate change. Water management decisions and the implementation, or lack thereof, of programs affecting water regimes, water quantity and water quality, can have serious impacts on the survival and recovery of imperiled species, as well as on preventing the decline of those currently considered stable. The ESA and other wildlife protection laws can help save and recover not only imperiled wildlife, but may also serve as important tools in the preservation and restoration of ecosystems on which these species depend within the Greater Everglades Ecoregion.

The first section of the paper lays out the **Background and Legislative History of the ESA** followed by explanations of the major provisions of the Act.

The bulk of the document, **The Endangered Species Act in Action**, presents a series of water and wetland issues with related case law and species or habitat case studies --

Protecting Wetlands: Wetlands protection can be increased through the species listing and consultation processes under the ESA along with improvements in cumulative impact analyses. Case studies include the Cape Sable seaside sparrow, wood stork, panther, and flood insurance and endangered species in the Florida Keys.

Protecting Water Quantity: Direct and indirect injury to species can occur from water withdrawals that lead to the need for listing and accompanying conservation action that protect and restore natural systems. Governmental or private actions that constitute inappropriate consumptive uses of resources can violate the ESA. Florida needs to establish tracking mechanisms for consumptive uses and develop water reservations to avoid the illegal "take" of listed species and protect the ecosystems they depend upon.

Protecting Water Quality: As knowledge of poor water quality effects on wildlife grows, the issue of water quality will play an increasingly larger role in wildlife law. This can be seen in examples such as the listing of the Staghorn and Elkhorn corals in the Florida Keys, and recent litigation in which a federal court in Oregon concluded that the U.S. Environmental Protection Agency

violated the ESA in approving the state's water quality standards because of an inadequate study of the effects on wildlife.

Protecting the Flow of Water: Alteration of flow regimes is one of the most widespread stressors of wildlife; impoundments, diversions and withdrawals threaten numerous species and have been the subject of extensive litigation under the ESA. Case studies from the Tri-State Water Wars (Florida, Georgia, Alabama), the Edwards Aquifer (Texas) and Bay Delta (California) demonstrate the need for Florida to address impairments to water flows and levels to avoid jeopardizing or taking species and prevent violations of the ESA.

Protecting Species from Climate Change and Sea Level Rise: The ESA alone is not the answer to the complex challenges of climate change but it is one of the useful tools for helping protect species and maintain habitat connectivity across the landscape. Section 5 of the ESA is highlighted due to its important land acquisition opportunities for addressing climate change repercussions. An example of current planning efforts is described in the Everglades Headwaters National Wildlife Refuge case study. The affirmative responsibility of the federal agencies to conduct conservation programs under Section 7 is described, as well as, one of the goals under Section 6 which seeks to resolve water resource issues between federal and state governments.

In the next section, **State and Local Laws**, three additional Florida laws that provide wildlife and habitat protection are explained; 1) the Florida Threatened and Endangered Species Act, 2) the Florida Community Planning Act, and 3) the Florida Constitution.

Closing Thoughts and Preliminary Recommendations constitute the final section of the paper**.** These include:

- Fund and Implement CERP Projects to Advance Species Recovery
- Strengthen the U.S. Fish & Wildlife Service's Environmental Baseline and Cumulative Effects Analysis in Biological Opinions
- Track the Amount of Water Lost to Consumptive Uses and How Much Water Remains Available for the Natural System
- Preserve Habitat and Connectivity in the Face of Climate Change
- Ensure there Is Enough Water to Protect the State's Investment in Kissimmee River Restoration

INTRODUCTION

The federal Endangered Species Act is famous for the strength of its legal commands to protect species of animals and plants that are in peril of extinction. Although it is often a target of criticism, Congress has never watered down the Act's essential commitments since enactment December 28, 1973. This year recognition is being given to the 40th Anniversary of the

Endangered Species Act and its importance in saving the wildlife heritage of the nation. It remains, as historian Roderick Nash has called it, "the strongest American legal expression to date of environmental ethics."[1]

The Greater Everglades Ecoregion of south Florida provides habitat for over 60 federally listed species and numerous other species-at-risk as recognized by the state and other wildlife authorities such as the International Union for the Conservation of Nature. The region, which is home to a vast network of both wild and working lands, is undergoing the largest restoration project in the world.

This paper explores the relationship of wildlife law and water management to help determine if the restoration of the Greater Everglades and the recovery of Endangered Species can both be enhanced through leveraging the power of these laws to reach their shared vision.

THE ENDANGERED SPECIES ACT

Background and Legislative History

The federal Endangered Species Act is not an isolated statute; rather, it is the crowning piece of a rise in ecological consciousness and the legal authority of the federal government to protect natural resources, developed during the past century and more.

The land, water, and air that make up the United States hold a cornucopia of mammals, fish, birds, reptiles, amphibians, invertebrates, plants, and other organisms. Early European visitors to the Americas, such as John James Audubon, were captivated by the wildlife that flourished in the western hemisphere. But the expansive settlement and changes in North American over the past few hundred years have cast a shadow over many of these animals and plants. The most famous near-disaster was the American bison, also called the buffalo; only a century after numbering in the tens of millions throughout an early United States, the bison was slaughtered and marginalized so that fewer than 1000 bison survived by 1870 when conservation efforts began. Less happy was the story of the passenger pigeon, a bird that flocked by the millions across much of the early United States including Florida. Environmental stresses, including both hunting and adverse changes to its habitat, sent the once-famous bird into a downward spiral from which it could not return. The last wild bird was killed around 1900; the last captive passenger pigeon, named Martha, died in the Cincinnati zoo in 1914. The dusky seaside sparrow represents a more recent and lamentable story of extinction in Florida. By the time the decision to undertake captive breeding of the remaining wild birds was made only four were found, all males. The last dusky died on June 16, 1986.

Early American laws relating to wildlife were created at the state and local level, as laws were in almost all aspects of society until the 20th century. Indeed, the Ohio legislature in the 1850s

[1] RODERICK NASH, THE RIGHTS OF NATURE 175 (1989).
[2] Gibbons v. Ogden, 22 U.S. 1 (1824).
[3] Codified today at 16 U.S.C. §§ 703-712.

considered a bill to try to protect the passenger pigeon. But local regulations often were ineffective, then and now, in protecting wildlife. Animals move from place to place, including through migrations, without regard to state or jurisdictional boundaries. Thus, even a seemingly strong legal effort to protect a migratory bird in one state can quickly be undermined by the lack of protection in another state to which the bird migrates. An apt parallel can be drawn to human transportation; while transport laws in the pre-industrial age could be handled at the local level, the increasing speed of transportation made national regulation necessary. In 1824, the U.S. Supreme Court held in *Gibbons v. Ogden* that a New York law that restricted steamboats to and from New Jersey was an unconstitutional infringement on congressional power to regulate interstate commerce.[2] Experts today note this case as a landmark example of the benefits of having the national government decide regulation of things that cross state lines, as opposed to allowing state control, under which each state is encouraged to favor its own citizens, to the eventual detriment of the entire nation. Similarly, Congress created the Interstate Commerce Commission in 1887 in order to regulate railroads nationally.

The growing recognition of the need for federal law to govern things with interstate effects soon moved to natural resources. In 1891, Congress enacted a law to create national forests, responding to the perceived danger that American forests could disappear and that each state had inadequate incentives to preserve local trees. Similarly, the Rivers and Harbors Act of 1899 authorized federal authorities to prevent dumping into rivers that might impede interstate navigation.

At the same time, in the late 19th century, biologists and lawmakers began to realize that wildlife held parallels to transportation – that state-by-state regulation would sometimes be ineffective and that each state would hold an incentive to help parochial economic interests, with the risk that the wider public good would suffer. While most authority remained at the state or local level – then as now – the federal government took limited steps. The Lacey Act of 1900 made it a federal crime to transport wildlife that was killed in violation of any state law. Three years later, wildlife conservationists in Florida convinced President Theodore Roosevelt to sign an executive order that created a national wildlife refuge at Pelican Island, in Indian River County in east central Florida. At the time, waterbird populations were plummeting, due to both loss of habitat and hunting for decorative bird plumage. Pelican Island was perhaps the sole remaining viable brown pelican rookery on Florida's Atlantic Coast. This was the first time that the federal government set aside an area specifically in order to protect wildlife.

In 1916 – just two years after the death of the last passenger pigeon – the United States entered into a treaty with Great Britain concerning steps to prevent the excessive killing of migratory birds. Many species of birds migrate, of course, between the United States to Canada (then a British dominion; later migratory bird treaties were made with Mexico, Japan, and other nations). Two years later, Congress enacted the Migratory Bird Treaty Act, which implemented

[2] Gibbons v. Ogden, 22 U.S. 1 (1824).

the treaties by setting forth a national permit system for the taking of migratory birds.[3] Unhappy with the federal regulation, the state of Missouri sued, arguing that the law exceeded Congress's authority. In the landmark decision of *Missouri v. Holland*, the U.S. Supreme Court in 1920 upheld the Migratory Bird Treaty Act, concluding that it was a justifiable exercise of the federal treaty power. Thus, for nearly a century, the federal courts have held that federal regulation of wildlife may trump contrary state law.

Over the next few decades, Congress passed a number of wildlife laws with limited reach, such as the Bald and Golden Eagle Protection Act of 1940, which made it illegal to kill or even possess bald eagle feathers anywhere in the United States, and the Fish and Wildlife Coordination Act of 1934, which encouraged federal agencies to study ways in which to preserve threatened wildlife and habitat.

The term "endangered species" first became popular in the 1960s; in 1964, the Interior Department created a Committee on Rare and Endangered Species. Two years later, Congress passed the Endangered Species Preservation Act, the first attempt at comprehensive attention to the phenomenon of species extinction that accompanies the expansion of human activities and loss of species habitat. The Department of the Interior created a list of endangered species; among the first "listed" species were the Florida panther, the American alligator, the whooping crane, and the ivory-billed woodpecker. The law encouraged federal agencies to protect such species, when practicable, and to make it unlawful to take endangered species on national wildlife refuges. Because of its mostly voluntary nature, however, the Act had little teeth.

Meanwhile, other nations began to recognize the threats of extinction and that a lack of coordination among nations would hamper any single-nation effort. Attention to animals in international waters led Congress to enact the Marine Mammal Protection Act in 1972, which barred the harming of mammals such as dolphins, porpoises, whales, polar bears and manatees.[4] Internationally, the Convention on International Trade in Endangered Species ("CITES") was agreed upon by more than 80 nations, including the United States, at a meeting in Washington in 1973; this treaty regulated the trade in any species protected under any signatory nation's laws.

At the same time, President Richard Nixon called for greater protection for imperiled species, saying that existing law "simply does not provide the kind of management tools needed to act nearly enough to save a vanishing species." In response to both Nixon and the new CITES treaty, Congress debated and passed in 1973 a new federal statute: the Endangered Species Act. The bill gathered nearly universal support among members of Congress, including Republicans such as Ted Stevens, Robert Dole, and Jesse Helms. The only concern raised by a handful of legislators was whether the federal government would usurp the powers of the states; they were assured that states would be permitted to continue to implement their own laws that did not

[3] Codified today at 16 U.S.C. §§ 703-712.
[4] Codified today at 16 U.S.C. §§ 1361-1421.

conflict with or went further than the federal law. The Senate adopted the bill by a vote 92-0 and the House by 390-12.

In his signing statement on December 28, 1973, President Nixon stated that the ESA "provides the federal government with the needed authority to protect an irreplaceable part of our national heritage – threatened wildlife … Nothing is more priceless and more worthy of preservation than the rich array of animal life with which our country has been blessed. It is a many-faceted treasure, of value to scholars, scientists, and nature lovers alike, and it forms a vital part of the heritage we all share as Americans."

Years later, some critics of the ESA's application would assert that, in voting for the statute, lawmakers were thinking only about "charismatic megafauna" – that is, big and exciting animals such as wolves, bears, and eagles. But the statute was clear from the start that it applied to all species, regardless of their supposed charisma (even the 1967 list had included many obscure species), and that the statutory commands were powerful. Many times over the years, attempts have been made to radically alter the act's essential commands, but all the attempts have failed.

The first significant attempt to weaken the ESA was in the wake of the first case to reach the U.S. Supreme Court, 1978's *Tennessee Valley Authority v. Hill*.[5] The Supreme Court had upheld an order that a federal agency could not complete a dam project that, it was believed, would render extinct a small fish called the snail darter. Writing for the Court, Chief Justice Warren Burger stated that "one would be hard pressed to find a statutory provision whose terms were any plainer than those" in the ESA. In a dissent, Justice Lewis Powell predicted that Congress would respond by radically amending the ESA. Congress did amend the law, but only mildly – to set up a governmental committee that could grant exceptions to the Act's commands (formally called the Endangered Species Committee, but informally termed the "God Squad" for its potential ability to render a species extinct). Not only did this committee later deny an exemption for the dam – in more than 30 years since it has rarely interfered with the commands of the statute.

The Endangered Species Act serves many purposes. In addition to protecting species from going extinct, one of the primary goals of the Act is "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved."[6] Further, its emphasis on "critical habitat" preserves entire ecosystems – the web of animals, plants, air, water, soil, and minerals – that can be skewed by removing an important species. "To keep every cog and wheel is the first precaution of intelligent tinkering," wrote environmental philosopher Aldo Leopold in the 1950s. The concept of *ecosystem services* points out the tremendous value to humans provided by healthy ecosystems – such as coastal Florida's mangrove forests, which act as a barrier against storms, help cleanse water of pollutants, and offer shelter and habitat for a panoply of species, including valuable shellfish. Because of their uniqueness, distinctive plants and animals offer humans valuable enzymes and other substances; more than half of all drugs to

[5] TVA v. Hill, 437 U.S. 153 (1978).
[6] 16 U.S.C. § 1531(b).

fight infectious diseases and cancer have been derived from nature. Famous examples include antiviral agents spongouridine and spongothymidine, which were isolated from Florida Key marine sponges. A critical enzyme used to determine drug safety comes from the blood of rare Atlantic horseshoe crabs (which are then released back to the sea), while a fungus that grows on the Pacific yew tree synthesizes Taxol, which has become the most valuable anticancer drug in history.

Habitats rich in wildlife also attract billion of dollars in tourism to states such as Florida, where bird-watching for rare species, visits to manatee-rich bays and rivers, and diving to coral reefs contribute impressively to the state's economy. Finally, economists note that Americans gain quantifiable happiness from knowing of the continued existence of endangered species, such as Florida resident who reads about polar bears in Alaska, or a Colorado citizen who follows the success story of the revival of the brown pelican in Florida.

The Statutory Provisions

The ESA (in the U.S. Code at 16 U.S.C. §§ 1531-1544) is simple and straightforward, compared with many other federal laws. It sets forth understandable commands, with some plain exceptions.

After providing the name of the act in **Section 1**, Congress set forth in **Section 2** its findings and purposes enacted in the law. Congress found that "species of fish, wildlife, and plants in the United States have been rendered extinct as a consequence of economic growth and development untempered by adequate concern and conservation," that species "have been so depleted in numbers that they are in danger of or threatened with extinction," and that these species "are of aesthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people …."

The purpose of the law is "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species," and to achieve "the purposes of the treaties and conventions" related to species. This statement serves as a refutation of the argument that Congress was concerned only about a handful of charismatic animal species, and not about the larger question of preserving entire ecosystems – that is, natural places and environments in which a diversity of species can prosper in healthy air, water, and soil.

Section 3 provides definitions, which are essential in understanding the working of a statute. As with most laws, Congress left some terms unclear or undefined, which allows the federal regulatory agencies charged with implementing the law to fill in the gaps.

An *endangered species* is one "which is in danger of extinction throughout all or a significant portion of its range other than a species of the Class Insecta determined by the Secretary to constitute a pest whose protection under the provisions of this chapter would present an overwhelming and

overriding risk to man." A *threatened species* is one "which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range."

A *species* includes "any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature."

Section 4 sets forth the procedures for placing a species on the endangered and threatened list and for removing it. The listing decisions are made by the Secretary of the Interior or of Commerce. (The secretaries have agreed to give the Interior Department's Fish and Wildlife Service the primary responsibility for land species and birds, while the Commerce Department's National Marine Fisheries Service holds the duty with regard to most marine species. These two agencies are often referred to as the wildlife "expert" agencies.)

Significantly, the ESA commands the agencies to make their listing decisions "on the basis of the best scientific and commercial data available" – meaning that decisions *cannot* include judgments about the potential indirect effects of listing on economics, sociopolitical input or other non-scientific information. Criteria to be considered, according to section 4, include the "present or threatened destruction, modification, or curtailment of its habitat or range," overutilization (e.g., excessive collecting, commercialization, overhunting), disease or predation, inadequacy of regulatory mechanisms, and other natural or manmade factors affecting continued existence.

In addition to listing species, the federal wildlife agencies must also designate critical habitat whenever it is "prudent and determinable." Critical habitat is defined to include those areas occupied by the species on which are found "physical and biological features" that are "essential to the conservation of the species."[7] Critical habitat can also include unoccupied areas with features that are essential to the conservation of the species. The definition of "conservation" is significant to understanding the scope of critical habitat. To conserve a species means to bring it to the point that the measures provided for in the ESA are no longer necessary[8]. If an expansion in the range of the species is necessary, then unoccupied areas may be designated as critical habitat[9]. Unlike listing decisions, the designation of critical habitat can include economic and social considerations[10].

Section 4 also requires the expert agencies to develop and implement "recovery plans" for each listed species. At a minimum, a recovery plan includes a description of site-specific actions needed to achieve recovery of the species, measurable criteria of improvements that would enable the species to be removed from the list, and estimates of the time and costs required to achieve the plan's goal.

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[7] 16 U.S.C. §1532(5). Those features must also require special management considerations or protection.
[8] Id., § 1532(3).
[9] *See e.g.* Sierra Club v. U.S. Fish and Wildlife Service, 245 F. 3d 434 (5th Cir. 2001) (agencies required to designate critical habitat for the Gulf sturgeon).
[10] Id., §1533(b)(2)

Section 5 calls for the Secretary of the Interior and Secretary of Agriculture to establish and implement a program to conserve fish, wildlife and plants, including those that are listed and endangered or threatened under the Act. The Secretaries are directed to utilize land acquisition to carry out this program. Funds made available by the federal Land and Water Conservation Fund can be used for this purpose.

Section 6 requires the expert agencies to cooperate with state authorities. In carrying out recovery plans, the agencies often enter into "cooperative agreements" with states concerning research, regulations, funding, and other steps in species recovery.

Section 7 imposes duties only on all federal agencies (not just the two expert agencies); this section also is the vehicle for much of the litigation under the act. It requires all federal agencies to "insure" that their actions do not "jeopardize" listed species. Although Congress did not define "jeopardize," the expert agencies define jeopardy as an action that "reduce[s] appreciably the likelihood of both the survival and recovery of a listed species." For example, a federal agency's completion of a dam that would make a listed species extinct would violate the command not to "jeopardize." The section also orders federal agencies not to engage in "adverse modification" of the "habitat … which is … critical" for a listed species. Unless not prudent to do so[11], the expert agencies are supposed to designate this *critical habitat*, although the expert agencies have not done so for many species. The God Squad is authorized to make exceptions to the agency's duties.

All federal agencies are supposed to comply with the duties to avoid jeopardy and adverse modification of critical habitat though a *consultation*, before they act, with the appropriate expert agency – the Fish and Wildlife Service or National Marine Fisheries Service. For significant actions, the expert agencies may write a *biological opinion* about the expected effects of the planned actions. If the plan would jeopardize a listed species, the opinion can suggest alternative actions that would not cause jeopardy. Courts typically defer to these expert biological opinions. Finally, all agencies hold the duty to take steps to "conserve" listed species, although the law imposes no specific duties beyond the no-jeopardy and consultation requirements.

Section 8 deals with international cooperation and encourages bilateral and multilateral agreements.

Section 9 imposes duties on all persons and organizations, not just federal agencies. Most significantly, this section makes it unlawful to "take" an endangered species, regardless of location. The definition (in section 3) is that "take" means to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." The agencies have further clarified that "harm" includes modifying a species' habitat when it "actually kills or injures wildlife by significantly impacting essential behavioral patterns, including breeding,

[11] Designation of critical habitat is not prudent for example when the identification of critical habitat would disclose the species' location to collectors. *See* 50 C.F.R. § 424.12.

feeding, or sheltering." Thus, cutting down a privately owned forest that is needed for an endangered bird's ability to breed is an unlawful "take," even if the harm to the bird was not intended by the logger and even if the logger never directly touches a bird.

Section 9 also makes it unlawful to import or export a listed species.

If a person wants to act in a way that might "take" a listed species, the person can seek an *incidental take permit* under **section 10**. The expert agencies can grant a permit that makes take lawful, if a landowner offers and carries out an acceptable *habitat conservation plan*, meaning a plan that does more to help the species than the take would do to harm its continued existence. Typically, a landowner seeks to buy land to set aside as a conservation area – for example, a logging company might buy and conserve a hundred acres of forest that are suitable future habitat for an endangered bird (but that have been threatened with commercial development), in return for an incidental take permit that allows it to cut down twenty acres in which the bird currently nests.

Biological opinions issued at the conclusion of the section 7 consultation process commonly include an "incidental take statement," though which federal agencies may also receive permission to engage in activities that kill or injure protected species. An incidental take statement authorizes take of listed species that is only incidental to – not the purpose of – an otherwise lawful activity. The statement also must set forth "reasonable and prudent measures" that the federal action agency is required to carry out to minimize take. The measures can add significant protections for threatened and endangered species.

Section 10 also authorizes the agencies to grant incidental take permits for scientific or recovery purposes.

Section 11 sets forth penalties and enforcement. Both civil and criminal penalties are available for unlawful "take" and other violations, although the government uses these powers sparingly.

The most common method of enforcement is through "citizen suits," authorized through section 11. Any citizen who has standing – in effect, any citizen or group who can prove that it is hurt by a violation – can sue to enjoin (stop) the conduct that would violate the act. The ESA is one of the most active forums for citizens to sue to enforce American law.

A citizen can sue either the government for failing to take mandatory action – such as an expert agency's failure to make a prompt "listing" determination under section 4, or any federal agency's failure to consult with the expert agency about jeopardy, in violation of section 7, before starting a project. A citizen can also sue to enjoin a private party whose planed conduct is likely to "take" a listed species.

THE ENDANGERED SPECIES ACT IN ACTION

Protecting Wetlands

The tremendous loss of Florida's wetlands is an all too familiar story. The state has lost more than half of its original wetlands[12] -- a truly significant occurrence given that Florida has more wetlands than any other state except for Alaska.[13] While both the Federal and State governments have a "no net loss" wetlands policy in place dating back to President George H.W. Bush, the State continues to lose thousands of acres of wetlands each year. As St. Petersburg Times reporter and author Craig Pittman reported, at least 84,000 acres of Florida wetlands disappeared between 1990-2005.[14]

Listing

The ESA can be a strong tool in wetlands protection. Several wetland dependent species such as the Florida Panther (whose numbers may have been as low as 30 in the 1980s) might not be around today without the protections afforded by the Act.[15] In addition, the ESA appears to have helped other species such as the wood stork[16] and American crocodile make considerable progress towards recovery.[17]

The Wood Stork: A Case for Cautious Optimism

The wood stork is the only true species of stork, which nests in the United States. Between 1930 and 1978, the species experienced a significant population decline, attributed to a reduction in the food base to support breeding colonies.[18] This reduction in food base was related to the significant loss of wetland habitats and changes in hydroperiods.[19] By 1978, there were only 2,700 nesting pairs remaining in the Southeastern United States.[20] In 1984, the U.S. Fish & Wildlife Service listed the species as endangered.[21] While yearly survey results have varied over the years, the population does appear to be on the rebound. Over the last decade the average number of nesting pairs has increased from 7,068 to 8,996.[22] Although the average number of

[12] *See* National Oceanic and Atmospheric Administration, at http://www.habitat.noaa.gov/protection/wetlands/impacts.html
[13] Craig Pittman and Matthew Waite, "They Won't Say No," St. Petersburg Times, May 22, 2005.
[14] Craig Pittman and Matthew Waite, "They Won't Say No," St. Petersburg Times, May 22, 2005.
[15] *See* http://www.esasuccess.org/mammals.shtml#anchor16417; http://blog.nwf.org/2011/05/celebrating-wildlife-success-stories-on-endangered-species-day/
[16] *See* "Fish and Wildlife Service Proposes Upgrading Wood Stork's Status," at http://www.fws.gov/northflorida/Releases-12/20121218_nr_Service_issues_12-month_finding_proposes_status_upgrade_for_wood_stork.html
[17] *See* Final Rule, Reclassification of the American Crocodile Distinct Population Segment in Florida from Endangered to Threatened, 72 Fed. Reg. 13027-41 (March 20, 2007).
[18] Department of Interior, Fish & Wildlife Service, "Endangered and Threatened Wildlife and Plants; Reclassification of the Continental U.S. Breeding Population of the Wood Stork From Endangered to Threatened," 77 Fed. Reg. 75947-75966 (Dec. 26, 2012); Reclassification of the Continental United States Breeding Population of the Wood Stork From Endangered to Threatened; Correction, 78 Fed. Reg. 278-279.
[19] Id.
[20] Id.
[21] Department of the Interior, US Breeding Population of Wood Stork Determined to be Endangered, 49 Fed. Reg. 7332-7335.
[22] *See* http://www.endangeredspecieslawandpolicy.com/2012/12/articles/conservation/the-us-fish-and-wildlife-service-proposes-to-downlist-the-status-of-the-wood-stork-from-endangered-to-threatened/.

nesting pairs is still below the five-year average of 10,000 necessary for delisting, the news is encouraging.[23] Consequently, the U.S. Fish & Wildlife Service announced its intentions last month of downlisting the wood stork from endangered to threatened.

Yet, the number of breeding pairs does not tell the full story, particularly in Southwest Florida, where the nation's largest wood stork colony has failed to produce a single nest in four of the past five years.[24]

To insure the recovery of the species, the Service must retain the same level of protections for this now threatened species as it did when the species was listed as endangered. This includes the continued prohibition on take.[25] In addition, the Federal government must take all necessary steps to insure the successful implementation of Everglades restoration projects. As the Fish & Wildlife Service recognizes, the Comprehensive Everglades Restoration Plan (CERP) and the Kissimmee River Restoration project have greatly benefited the species[26] and future projects will likely be critical to achieving the full recovery of the species.

While species such as the wood stork appear to be on their way towards recovery, others such as the Panther and smalltooth sawfish[27], are nowhere near the recovery goals set forth in their recovery plans, and potentially dozens more species may be listed in the next several years due to habitat loss and degradation. A recent petition filed by the Center for Biological Diversity highlights the threats facing hundreds of other water dependent species and the need for action.

Case Study: "The 404 Petition"

On April 20, 2010, the Center for Biological Diversity filed a petition under the ESA asking the U.S. Fish & Wildlife Service (FWS) and National Marine Fisheries Service (NMFS) to list 404 aquatic, riparian, and wetland species occurring in the Southeastern United States. In September 2011, the Service found that protection of 374 species may be warranted under the Act. Since then, FWS has proposed listing the Florida bonneted bat and three Florida plant species-aboriginal prickly apple, Florida semaphore cactus, and Cape Sable thoroughwort-species all threatened by sea level rise.

The Service's determination that most of these 404 species "may warrant" protection, highlights the gravity of the situation and the serious consequences water management decisions and sea level rise are having on listed species, including species occurring in south Florida. Given the failure of federal and state governments to insure "no net loss" of wetlands, the increasing

[23] Id.
[24] Audubon of Florida, "Wood Storks-Mission Accomplished?" at http://audubonofloridanews.org/?p=10588.
[25] Although the ESA only specifically prohibits the take of "endangered" species, the Service extends the same protections to threatened species unless it carves out a special "4(d)" rule for the species.
[26] *See* http://www.fws.gov/northflorida/Releases-12/20121218_nr_Service_issues_12-month_finding_proposes_status_upgrade_for_wood_stork.html
[27] The Recovery plan for the smalltooth sawfish projects a recovery period of 103 years for the species. *See* http://www.biologicaldiversity.org/news/press_releases/2012/wood-stork-01-04-2012.html

consumptive use demands of industry, utilities, and agriculture, and a projected 1.5-5 foot rise in sea level in the next one hundred years,[28] federal, state, and local governments must take proactive efforts now to slow the extinction crisis. If not, the number of species in Florida requiring protection under the ESA may continue to rise and regulators at all levels of government will likely face even more difficult, controversial, and costly decisions in the years to come.

Consultation

Once a species is listed and its critical habitat is designated, the consultation process under Section 7 of the Act is probably the most utilized and important procedural safeguard the ESA has to offer to protect wetland dependent species. Section 404 of the Clean Water Act prohibits the filling of wetlands without a permit from the U.S. Army Corps of Engineers.[29] In many instances the issuance of a section 404 permit or other federal actions "may affect" listed species, thus triggering the consultation requirements of section 7. In Florida, FWS routinely consults with the Corps and other agencies on projects affecting a wide range of species including the wood stork, snail kite, eastern indigo snake, and Florida Panther. A nearly two decades long case involving the endangered Key Deer and the Federal government's flood insurance program highlights the scope and importance of the consultation process.

Case Study: Flood Insurance and Endangered Species in the Florida Keys

In 1984, the U.S. Fish & Wildlife Service determined that the Federal Emergency Management Agency's (FEMA) administration of the National Flood Insurance Program in the Florida Keys potentially jeopardized the Florida Key Deer by effectively authorizing and encouraging development throughout the Keys. FEMA refused to consult and in 1990, plaintiffs sued. A district court ruled in favor of the plaintiffs in 1994 requiring FEMA to consult with the Service and enjoined FEMA from issuing any flood insurance.[30] The two agencies subsequently consulted and in 1997 the Service issued a biological opinion finding that the NFIP as administered in the Florida Keys *would jeopardize* the Florida Key Deer and eight other species. The Biological Opinion established certain reasonable and prudent alternatives (RPAs) that could be implemented to avoid jeopardizing the nine species.

Plaintiffs sued in 1998 and following a slightly amended biological opinion in 2003 containing the same RPAs as set forth in the 1997 Biological Opinion, Plaintiffs amended their complaint to challenge the 2003 RPAs. In 2005 the district court ruled in favor of the plaintiffs once again. The Court criticized the 2003 RPAs for relying on voluntary measures and not protecting against

[28] *See* U.S. Global Change Research Program Report, "Global Climate Change Impacts in the United States: A State of Knowledge Report from the U.S. Global Change Research Program." (2009).
[29] 33 U.S.C. § 1344.
[30] Fla. Key Deer v. Stickney, 864 F. Supp. 1222 (S.D. Fla. 1994).

habitat loss and fragmentation along with not accounting for the cumulative effects of the projects that would be permitted as a result of the issuance of flood insurance. As a result, the district court enjoined FEMA from providing any insurance for new developments in suitable habitat for listed species in Monroe County.[31] FEMA and the Service subsequently appealed.

The Eleventh Circuit Court of Appeals ruled that the section 7 process does in fact apply to FEMA's administration of the NFIP as it is an agency action in which there is discretionary Federal involvement or control, that FEMA must perform an independent analysis of the Service's proposed RPAs before adopting them, that FEMA had failed to develop a conservation program consistent with section 7(a)(1), of the Act and that the district court's injunction on the issuance of flood insurance was consistent with the ESA.[32]

Following the Eleventh Circuit's ruling, a new biological opinion was developed in April 2010, followed by an amended Biological Opinion in December 2010. Last year, the district court determined the amended Biological Opinion was in compliance with the previous court orders and ordered the current injunction to remain in effect until the RPAs are in effect. The RPAs call for eleven actions that must be implemented by FEMA, the Service, and the local governments before the injunction is to be lifted.

The case established a few important national precedents for species protection. First, it held FEMA accountable for the jeopardy that could have been caused by the issuance of flood insurance in floodplains (much of which included wetlands). Second, it recognized that FEMA has the power, authority, and duty to require local governments to enact ordinances protecting endangered species habitat as a condition of supplying flood insurance when jeopardy would otherwise occur. Third, though the implementation of reasonable and prudent alternatives, it demonstrated that FEMA has the power to deny flood insurance to individual policyholders who violate the prescribed conditions that the local government must follow to prevent jeopardy.[33]

As illustrated by *Florida Key Deer v. Paulison*, the Section 7 process provides the Services with the opportunity to closely scrutinize actions that may adversely impact listed species and when necessary, impose reasonable and prudent alternatives to the proposed action so that species are not put in jeopardy. In addition, in certain instances, the implementation of RPAs may require a total team effort, including the involvement of state and local governments to insure that species are adequately protected. Of course the ultimate fate of the species will depend in large part on the effective implementation and enforcement of the RPAs. Fortunately, however, as a result of Congress' political will to make endangered species a national priority some forty years ago, and a nearly two decades long court battle, the species in the Keys have been given a fighting chance.

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[31] Fla. Key Deer v. Brown, 364 F.Supp.2d 1345 (S.D. Fla. 2005).
[32] Florida Key Deer v. Paulison, 522 F.3d 1133 (11th Cir. 2008).
[33] The case has already been cited by other courts around the country to advance these principles and protections. *See, e.g.*, Defenders of Wildlife v. U.S. Fish and Wildlife Serv., 797 F.Supp.2d 949, 959 (D. Ariz. 2011); Coalition for a Sustainable Delta v. Federal Emergency Management Agency, 812 F.Supp.2d 1089, 1109 (E.D. Cal. 2011).

Cumulative Effects and Insuring a Project Is Not Causing Jeopardy

While most consultations do not culminate in a "jeopardy" finding like the one that resulted in the *Florida Key Deer* case, the rigorous analysis required of biological opinions is critical to insure that each federal action will not jeopardize a listed species.

A particularly important part of that analysis is the Service's assessment of the *additive* impacts of the proposed federal action undergoing section 7 consultation together with non-federal projects that also affect listed species and their habitat. Courts have recognized that federal actions, particularly 404 permitting decisions, do not operate in a vacuum and can have significant effects on listed species in light of state and private actions that also affect the species and its habitat. As the following cases illustrate, the Act requires the Service to carefully assess a proposed federal action's impacts when added to the effects that state and private activities that also have on the same species. When the Service fails to follow these rules, courts have not hesitated to step in and insure these steps are followed.

Case Study: Panther and Wood Stork Litigation in Southwest Florida

In 2003, several environmental organizations lead by the National Wildlife Federation challenged the issuance of a 404 permit by the U.S. Army Corps of Engineers for a proposed 6,000-acre limestone mine in Southwest Florida over concerns that the project would significantly impact wetlands and the endangered Florida panther. As part of their suit, plaintiffs argued that the U.S. Fish & Wildlife Service's biological opinion for the project violated the Act because the agency failed to provide adequate support for its no jeopardy determination.

The Court agreed, explaining that the Service not only failed to adequately explain what the immediate loss of habitat meant to the panther, but it also failed to explain what part the project would play in the reasonably expectable degradation over time of the panther's habitat. Specifically, the court found that the Service's no jeopardy opinion hinged in part on the project's low "disturbance intensity" (simply the quotient of impacted acreage divided by the entire estimated range of the panther (2.2 million acres)), yet the Service failed to explain what this quotient meant to the panther. The Service also merely listed hundreds of state environmental resource permitting actions without explaining how all those actions, when combined with the consulted on action, would affect the panther. The case was remanded back to the Service to prepare a new biological opinion.[34] As a result of this litigation, the parties negotiated stronger protections for the project.

Five years later, a similarly comprised group of environmental organizations challenged the Service's biological opinion for a 1,700-acre luxury golf community in Collier County, citing concerns that the project would destroy important wood stork habitat.

[34] National Wildlife Federation, et. al. v. Norton, 332 F. Supp. 2d 170 (D.D.C. 2004).

The court invalidated the biological opinion after finding (among other things) that the Service had failed to evaluate the impact of several other projects in the action area in its analysis of the environmental baseline.[35] The biological opinion briefly mentioned the other projects but left it at that. The court stated, "simply reciting the activities and impacts that constitute the baseline and then separately addressing only the impacts of this particular agency action in isolation is not sufficient."[36] Without an accurate environmental baseline, the effects analysis is compromised and there are no assurances that an action will not jeopardize listed species.

The case was later settled with the plaintiff organizations securing several hundred additional acres of conservation land.

The consultation process under section 7 of the ESA has proven to be a valuable mechanism for wetland species protection.[37] The consultation process is triggered only where a federal action occurs, however, such as with the issuance of a permit from the Army Corps of Engineers under section 404 of the Clean Water Act. Recently, there has been a renewed interest by the State of Florida to seek "assumption" of the section 404 permitting program from the Army Corps of Engineers.[38] In other words, the Corps would "delegate" its permitting authority to the Florida Department of Environmental Protection. Currently, there are only two states in the nation (Michigan and New Jersey) with a delegated section 404 permitting program. Any delegation could limit or prohibit the Service from reviewing a state-issued 404 permit's potential impacts to listed species because in a least some instances the permit would no longer be considered a federal action. Thus absent some other federal action, potential impacts would likely have to be dealt with through section 10 habitat conservation plans and incidental take permits. Developers apply for these ITPs/HCPs on a "voluntary" basis to immunize themselves from potential liability under section 9 of the Act. Yet the government prosecutes few section 9 cases every year, and even fewer cases where the alleged take is in the form of habitat destruction. This could leave citizens with the burden of prosecuting these cases as private attorneys general through section 11 of the Act. Thus, delegation of 404 permitting to the state could have profound implications for the Service and its ability to evaluate and minimize the impacts wetland fill projects have on listed species.

Protecting Water Quantity

Overview

[35] National Wildlife Federation, et. al. v. Souza, 2009 WL 3667070 (S.D. Fla. 2009).
[36] Id. (quoting Defenders of Wildlife v. Babbitt, 130 F. Supp. 2d 121, 127-128 (D.D.C. 2001)).
[37] *See* Oliver Houck and Michael Rolland, "Federalism in Wetlands Regulation: A Consideration of Delegation of Clean Water Act Section 404 and Related Programs to the States," 54 Md. L. Rev. 1242 (1995) (discussing how ESA review of 404 permit applications has led to the scaling down of waterside development projects affecting the manatee, piping plover, and Brown Pelican). As Houck and Rolland contend, "section 7 of the ESA is the most powerful safeguard in environmental law, and in the section 404 program." Id. at 1259.
[38] *See* http://democrats.transportation.house.gov/hearing/subcommittee-water-resources-and-environment-hearing-"forty-years-after-clean-water-act-it.

The ESA's protections can be triggered by activities that are not directed at the species or even at disturbing its habitat. Through over extraction and consumption of natural resources, such as forests, minerals, or crops, humans may indirectly or unintentionally injure listed species.

Probably the most notable example is water consumption: Withdrawing water from a river, lake, or underground aquifer can damage an aquatic species or a plant or animal that depends on aquatic wildlife. The harm to snail darter in the *TVA v. Hill* case, for example, was caused by the impoundment of water in a reservoir. In Florida, which is surrounded by surface water but dependent on groundwater aquifers for much of its human needs, water consumption can pose serious threats to animals and plants. Farms, houses, lawns, and businesses each devour enormous amounts of freshwater each day. Depletion of Florida's limited supply of clean freshwater – the Sunshine state has far less clean freshwater than saltwater or polluted freshwater – threatens many of Florida's unique species.

Listing

In deciding whether to list a species as endangered or threatened under the ESA, the expert agency must consider five factors: "(A) the present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence." Most of these factors can be affected by resource consumption. For example, some of the early decline of the Florida panther was due to the logging of the dark and dense cypress forests in which the cats formerly thrived. Hunting of large birds, including taking for their plumage, led to the listing of Florida's wood stork, which is now moving towards recovery. The green sea turtle, found off Florida's coasts, was listed in part because of the incidental bycatch of these turtles in the fishing industry. Further away, the threat of extinction due to pumping of groundwater has led to the listing of Idaho's Bruneau hot spring snail.

Federal Agency Duties

Consumptive uses of resources, such as water, can violate the ESA in a number of ways, both through duties of the federal government and the responsibilities on private citizens. Two such cases are explored below:

Case Study: Edwards Aquifer Litigation

One of the most dramatic and instructive examples concerns the decades-long dispute over pumping of water from the Edwards Aquifer, a large groundwater source in central Texas. For decades, people in Texas, including farmers, ranchers, and the city of San Antonio, withdrew water under the lax *rule of capture*, under which any landowner could pump as much water as it wished from under its land. This system encouraged rapid and wasteful pumping (each landowner was encouraged to withdraw local groundwater before its neighbor did so) as the

region grew. A number of species that depend on the Edwards Aquifer, including the Texas blind salamander, which lives in dark springs, and Texas wild-rice, were listed under the ESA as their prospects dimmed.

Starting in the early 1990s, environmentalists brought a series of lawsuits against federal agencies, state authorities, and private parties. The claims challenged the largely unlimited pumping from the Aquifer, which pushed the species toward extinction. Among the claims were that the federal government did not create an adequate recovery plans for the species, that federal agencies did not consult adequately about federal actions that facilitated pumping without adequate maintenance of water flows in the springs, and a failure to protect species' critical habitat. In addition, claims asserted that federal, state, and private parties engaged in unlawful "take" by drying up the springs. Federal courts in Texas agreed with most of the claims and ordered the federal government to establish water spring flow levels, below which "take" and "jeopardy" would occur, and to take steps to ensure that the water levels stayed above these lines.[39]

In response to the prospect of having the federal government in effect control one of Texas's most important resources, the Texas legislature eventually set up a state agency, the Edwards Aquifer Authority, to regulate pumping and to issue permits. Many interests in Texas vehemently opposed the effort to regulate and charge for groundwater; among their claims was that groundwater pumping was a protected property right under state law and could not be restrained without compensation. After years of litigation, federal and Texas courts largely approved the state-led regulatory system. As part of a long-term plan, which has yet to be implemented fully, decades after the initial litigation, millions of dollars are being spent on engineering works. Among the plans are for the U.S. Fish and Wildlife Service to issue incidental take permits in return for long-term maintenance of adequate water flows in the springs and aquifer. Costs are to be paid by pumpers and possibly by a regional sales tax.[40]

Case Study: The Delta Smelt

A similar controversy is playing out in the Delta region of central California. The delta, which is created by the merging of the Sacramento and San Joaquin rivers as they flow west toward the San Francisco Bay and the ocean, is California's closet equivalent to Florida's Everglades. Decades of human diversion of river water for agriculture and domestic use have created a number of ecological problems, including the subsiding of land (necessitating levees to be built far inland), the intrusion of salt water from the Pacific Ocean, with potentially devastating long-term consequences for one of the world's most productive farming areas, and stresses on many native species. One of the most notable species is the Delta smelt, a small endemic fish that has been

[39] *See, e.g.*, Sierra Club v. Lujan, 1993 WL 151353 (W.D. Tex. 1993).

[40] For a thoughtful discussion of the history of the Edwards Aquifer and the litigation, *see* Gregg Eckhardt, *Laws and Regulations Applicable to the Edwards Aquifer*, http://www.edwardsaquifer.net/rules.html.

pushed to the brink of extinction. As a result of ESA litigation, which among things successfully challenged the sufficiency of U.S. Fish and Wildlife Service's Biological Opinion, a federal court in California imposed limits on the amount of water that may be pumped, in order to maintain water flows necessary for the fish's survival.[41] These restrictions have stayed in place despite complaints that the restrictions have cost agricultural jobs.[42]

If Florida does not take meaningful steps towards effectively managing consumptive uses, an all too familiar and costly series of events could play out in the years ahead. At this time, the state lacks a comprehensive tool to track just how much water it is permitting away and just how much water remains for the natural system. In many locations, Water Management Districts continue to issue consumptive use permits without knowing how much water is left to draw from. There could come a point in time (if it has not yet already occurred) that the state's consumptive use permitting results in the "take" of federally listed wildlife. If this were to happen, there could be serious consequences for both the state and current and future water users. Compounding this problem is that water deficit issues are not caused solely by over allocation of consumptive uses but also because of modifications to the natural environment through the Central and South Florida (C&SF) system. The constant drainage through canals could have an equal or greater impact than consumptive uses. These drainage practices were of course the driving factor for establishing CERP. CERP, however, is taking much longer to implement than anticipated, yet consumptive uses continue to increase (albeit at a much lower rate because of the economic downturn).

Proactive approaches are needed now to get ahead of the extinction crisis. In addition to timely funding and implementation of CERP projects, additional measures could include developing water reservations that safeguard species threatened by the impacts of consumptive uses.[43] These water reservations could be implemented in conjunction with comprehensive watershed based habitat conservation plans under Section 10 of the ESA.

Protecting Water Quality

Overview

The quality of water can also greatly affect wildlife's ability to survive or prosper. While the most vivid image of poor quality is water polluted by industry, water quality encompasses far more than this. In fact, many water experts believe that degradation of water from nonindustrial sources –such as farms, lawns, and logging – is a larger problem for water quality in 21st century America. This is nothing new; in *TVA v. Hill*, the snail darter's existence was imperiled by the prospect of turning its river habitat, which naturally was a shallow, clear, rapidly flowing river

[41] *See, e.g.,* Natural Resources Defense Council v. Kempthorne, 2007 WL 4462395 (E.D.Cal.2007).
[42] *See, e.g.,* Associated Press, *Judge rejects plea to lift smelt water limits* (Feb. 11, 2010), http://www.sfgate.com/green/article/Judge-rejects-plea-to-lift-smelt-water-limits-3200254.php#ixzz2EfdnpH3z.
[43] *See* § 373.223(4), Fla. Stat. (providing water management districts with the authority to set aside water to protect fish and wildlife).

with a high oxygen content, into a deep, dark, still reservoir with a low oxygen content – almost certainly dooming the darter.

Water quality is most prominently regulated in the United States through the federal Clean Water Act, most significantly amended in 1972.[44] This law, however, suffers from a major limitation: It imposes most of its tightest regulations only on *point source* pollution, such as pollution from industrial pipe outflows and the like. Point-source polluters typically are regulated by permit requirements, which often limit the amount of pollution. The law's regulation of *nonpoint source* pollution, such as runoff of pollutants from farms or lawns, is more complicated and in many places is less effective. Under the Clean Water Act, state governments are required to create systems for establishing *water quality standards* – in effect, maximum acceptable levels of pollutants in the water – and then enforce *total maximum daily loads* for the variety of sources of pollution. This process requires complex science and study of pollution flows in water, as well as interaction with state laws and the cooperation of local governments. Most states, including Florida, are far from completing the task.

In agricultural regions, such as interior Florida, runoff from farms often constitutes the greatest source of water pollution. Modern farmers, who face tough competition from across the world, often place large amounts of fertilizers and pesticides on their fields in order to maximize yields. Rainstorms send some of these pollutants down slopes (and, yes, even Florida has slopes) into nearby streams, which then flow into rivers, lakes, and the sea. Fertilizers such as nitrogen and phosphorous are called *nutrients*, in that they spur rapid plant growth. In water bodies, large amounts of these nutrients unnaturally cause plants and algae to grow unusually quickly. The algae grow and die rapidly, darkening the water and cutting off light and oxygen below the surface. In Lake Okeechobee, the resting place for much of the runoff of southern Florida, estimates are that the lake has felt the load of more than 400 tons of phosphorous per year.[45]

In urban areas, nutrient and other pollution runoff comes from lawns, golf courses, and other places on which humans place fertilizers and insecticides in order to grow thick grass and preferred plants in Florida's sandy soils. Rains send much of these chemical additions onto asphalt streets and other impervious surfaces, where they mix with tons of motor oil and engine coolant, and then into storm drains, which often flow directly into rivers and seas. Meanwhile, disruption of the land for building houses, stores, highways, and parking lots, similarly sends tons of soil, sand, and gravel sediment into local water bodies.

Water pollution also arises from less obvious sources. Plant roots help keep soil in place during rains; removal of these plants, such as through logging or replacement of natural vegetation, causes soil to erode into streams and rivers. This phenomenon, which can rapidly change the

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[44] Codified at 33 U.S.C. §§ 1251-1387.

[45] *See* South Florida Water Management Distinct, *Lake Okeechobee Watershed Construction Project*: Phase II Technical Plan (2008), http://www.sfwmd.gov/portal/page/portal/xrepository/sfwmd_repository_pdf/ne_lakeo_watershed_phase2_summary.pdf.

composition of the water, has long been noted by adversely affected anglers and other close observers of rivers. More recent is our recognition that air pollution can result in the degradation of water. For example, the toxic pollutant mercury emitted from smokestacks can descend and be deposited into the water, which in turn can lead to dangerously high mercury levels in fish and other wildlife. This effect is most pronounced in Florida and other southern states.[46] In addition, the warming of water – caused by the use of water as a coolant for power plants and factories, which then discharge the warmed water – and changing of the acidity (pH) can harm wildlife in ways that ecological science has yet to fully understand.

The ESA at Work

As our knowledge of the effect of poor water quality on wildlife grows, the issue of water quality will play an increasingly larger role in wildlife law. Species will be listed in part because of poor water quality, agencies will have to consult over actions that might affect water quality, recovery plans will have to consider water quality more closely, and all parties will have to avoid actions that would "take" listed species.

For example, in 2006 the National Marine Fisheries Services listed both the Staghorn coral and Elkhorn coral – historically found off Florida's Keys and southern Gold Coast barrier islands – in part because of harm to coral reefs attributable to poor water quality. Sediment deposited into the sea from urban activities, temperature changes, and nutrient pollution contributes to the degradation of the coral.[47]

ESA litigation about water quality has already begun. In 2001, the U.S. Environmental Protection Agency was ordered by a federal court to consult under the ESA about the potential effects on endangered species of its approval of Maryland's water quality standards.[48] Under the terms of a memorandum of agreement between EPA and the Services, EPA's policy now is to consult routinely in assessing all state water quality standards.[49] This Memorandum set in place a system under which the agencies have agreed to work in a cooperative, as opposed to adversarial, manner, and included a mechanism for resolving potential disputes.

A key aspect of the agreement was that the EPA would consult under the ESA's section 7 whenever there is *discretion* in EPA's actions, and when this discretion might affect, even indirectly, listed species. EPA approval of state water quality standards under the Clean Water Act involves such discretion. So does, of course, the EPA's creation of federal water quality standards, including the publication of recommended water quality criteria that serve as guidance for states. Once water quality standards are in place, however, EPA does not consult

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[46] *See* U.S. Environmental Protection Agency, *Mercury: Environmental Effects*, http://www.epa.gov/hg/eco.htm.
[47] Robin Kundis Craig, "Acropora spp: Water Flow, Water Quality, and Threatened Florida Corals," 22-FALL Nat. Resources & Env't 8 (2007).
[48] Sierra Club v. U.S. E.P.A., 162 F.Supp.2d 406 (D. Md. 2001).
[49] *See* Memorandum of Agreement Between the Environmental Protection Agency, Fish and Wildlife Service and National Marine Fisheries Service Regarding Enhanced Coordination Under the Clean Water Act and Endangered Species Act, 66 Fed. Reg. 11201-11217 (Feb. 22, 2001).

on whether existing state standards might jeopardize listed species; this is because the EPA has no authority to force a state to "reopen" its standards more often than the water act requires. Nonetheless, the agencies agreed in the Memorandum to encourage states, whenever evidence appears that existing standards might jeopardize, to revise their standards more often or to adopt federal standards.

The legal system for Clean Water Act pollution permits (under the National Pollutant Discharge Elimination System, or NPDES) is different. Here, EPA may issue the permits itself, in which case ESA section 7 consultation is of course triggered. But most states, including Florida, issue the permits themselves, pursuant a mechanism under the Clean Water Act. EPA's policy is to consult on its approval of state applications to administer the NPDES permit program, when such approval might affect listed species. But once a state takes over the permitting, EPA no longer holds any control over whether to grant an NPDES permit to a polluter or over what terms are included in the particular permit; accordingly, consultation is not required for the permit issuance. Nonetheless, Clean Water Act regulations require that draft NPDES permits be made available to the wildlife agencies and that they are authorized to "comment" on the draft permits. The memorandum rejected an argument that such comments were in effect unlawful coercion or disapproval of the states' permitting authority.

Consultation with the appropriate federal expert wildlife agency does not complete the legal obligation with regard to listed species under the ESA. The details also matter. A striking example was a federal court's recent overturning of some of the new water quality standards for Oregon in 2012.[50]

Case Study: Details of How Water Quality Standards and Consultation Affect Listed Species

The U.S. EPA approved in 2004 Oregon's new water quality standards for temperature and intergravel dissolved oxygen (the amount of oxygen in the water at the floor of rivers) and antidegradation standards. Temperatures and oxygen levels that are too high or too low can harm the survival of animals and plants.

The federal district court overturned EPA's approval of Oregon's use of narrative natural conditions criteria for temperature water quality, as opposed to numeric criteria. The EPA had concluded that, historically, many salmon species had thrived at temperatures above the numeric criteria when certain natural conditions criteria were met. In effect, use of the narrative standards would have allowed warmer temperatures in some water bodies than the numeric criteria would have allowed. Narrative criteria are not allowed when numeric criteria are available, the court held, citing the EPA's own regulations. The court also found that the historical record of the salmon's survival at high temperatures did not mean that the fish could

[50] Northwest Envt'l Advocates v. United States Environmental Protection Agency, 855 F. Supp. 1199 (D. Or. 2012).

survive today, when it faces other threats in the rivers, including the loss of small cool-water refguia that had once been common in the rivers.

The court also set aside key aspects of the expert agencies' Biological Opinions, which had concluded that Oregon's water quality standards would not jeopardize the listed species. First, the court disapproved the agencies' assumption that each of 14 "evolutionary significant units" ("ESUs") of salmon and steelhead would respond similarly to temperature changes. Because the ESUs vary significantly in size and geographical location, there is reason to believe that they might respond differently to temperature. The court ordered the expert agency to analyze each of the 14 ESUs individually. Second, the court ordered the agency to do a more thorough job of analyzing the water quality needs for the *recovery*, not just the survival, of each of the ESUs, as well as a more thorough analysis of *cumulative effects* of other threats to the listed species.

Next, the court held that even a small an increase in the temperature standard for salmon and steelhead migration was inconsistent with a "no jeopardy" finding, considering that the current environmental baseline was already unacceptable. The court set aside the approval of the increase in the temperature standard, even though the temperature standard would have been better for the fish than the current real-world temperature conditions in Oregon's rivers.

Finally, the court held that the Fish and Wildlife Service's Biological Opinion was fatally flawed because EPA employees appeared to have persuaded the FWS, through a set of email messages, to use a higher temperature standard than originally proposed. The messages argued that using the lower temperature standard would be unwise because it might set unattainable expectations and might undermine the credibility of regulatory programs. These policy and politically oriented considerations, the court held, have no place in the ESA's regulatory requirement to use only "the best scientific and commercial data available," and not to consider either politics or policy considerations.

Interactions between water quality and wildlife laws are bound to grow as more states and local governments pay closer attention to obligations of the Clean Water Act and local demands for clean water.[51] Florida is no different and the state must take the necessary steps to improve the quality of its waters.

Protecting the Flow of Water

The flow of water through streams and certain wetlands is one of the most important elements of the aquatic habitat and the alteration of flow regimes is one of the most widespread stressors of wildlife. Wildlife is often dependent on a natural flow regime, which must be considered in terms

[51] Another recent example is in Texas. There, the U.S. Fish and Wildlife Service sent a letter advising landowners that certain steps should be taken to protect water quality in the Edwards Aquifer, in order to avoid an unlawful "take" of the Barton Springs salamander. Ignoring this advice left the landowners open to being sued for take under the ESA's section 9. *See* Save Our Springs Alliance v. Norton, F.Supp.2d, 2007 WL 958173 (W.D. Tex. 2007) (holding that the advice letter did not constitute an agency "action" that could be challenged in court).

of the magnitude, duration, frequency and seasonality of the flow.[52] The alteration of flow through impoundments, diversions and withdrawals threatens numerous species and has been the subject of extensive litigation under the Endangered Species Act.[53]

Case Study: Apalachicola-Chattahoochee-Flint Basin

The Apalachicola discharges more water in Florida than any other river and supports one of the state's most productive estuaries, the Apalachicola Bay. The Apalachicola is formed, however, by the confluence of two other rivers, the Chattahoochee and the Flint, whose origins are in the state of Georgia. The headwaters of the Chattahoochee are in the southern Blue Ridge Mountains, north of Atlanta, with part of the river forming the border with Alabama. The Flint River begins just south of the Atlanta airport and flows entirely in Georgia before joining with the Chattahoochee at the Florida border. Conflict among the users of water in the Apalachicola-Chattahoochee-Flint (ACF) basin has been ongoing for over thirty years and multiple federal cases filed in three states and the District of Columbia have been consolidated as the Tri-State Water Rights Litigation[54]. The conflict is more commonly called the Tri-State Water Wars[55].

Although the conflict is mostly about the allocation of water resources among urban users, hydropower producers, navigational interests, agricultural irrigators, wastewater dischargers, estuarine fisheries and a host of other interests, the Endangered Species Act plays a role. The Apalachicola is critical habitat for four listed species that are dependent on an adequate flow of water, the Gulf sturgeon and three mussels. The flow of water into the Apalachicola is controlled by the U.S. Army Corps of Engineers, which manages five federal dams on the ACF system, including Jim Woodruff at the head of the Apalachicola and Buford Dam, forming the largest reservoir in the system, Lake Lanier, between Atlanta and the mountains. The management of each of these reservoirs, and withdrawals and diversions for consumptive use throughout the system, affect flow and thus affect the potential for survival and recovery of the listed species.

The Fish & Wildlife Service issued a biological opinion finding that the 2008 Revised Interim Operating Plan for the Woodruff Dam would result in the take of listed mussels, though it would not jeopardize the species or destroy or adversely modify it's critical habitat so long as the operations met certain criteria[56]. A federal court upheld the Service's findings and incidental take

[52] N. LeRoy Poff; J. David Allan; Mark B. Bain; James R. Karr; Karen L. Prestegaard; Brian D. Richter; Richard E. Sparks; Julie C. Stromberg, The Natural Flow Regime, *BioScience*, Vol. 47, No. 11. (Dec., 1997), pp. 769-784.

[53] *See e.g.,* Rio Grande Silvery Minnow v. Bureau of Reclamation, 601 F.3d 1096 (10th Cir. 2010) ((Rio Grande silvery minnow); Natural Resources Defense Council v. Salazar, 686 F.3d 1092 (9th Cir 2012) (delta smelt); The Consolidated Salmonid Cases, 791 F.Supp. 2d 802 (E.D. Cal. 2011) (salmon, steelhead, green sturgeon and killer whales).

[54] In re MDL 1824 Tri-State Water Rights Litigation, 644 F. 3d 1160 (11th Cir. 2011), cert den. 133 S. Ct. 25 (2012).

[55] Jeffrey L. Jordan and Aaron T. Wolf (eds.), Interstate Water Allocation in Alabama, Florida and Georgia (2006).

[56] Id. at 6.

statement,[57] deferring to the expertise of the agency and the record of examining all relevant evidence. It did so despite reiterating that a take can occur by reducing the likelihood of recovery, not just survival.

The 2008 plan has already been revised in response to excessive mortality in 2010[58]. Meanwhile the Corps, in consultation with the Services, is developing a Master Water Control Manual[59]. It is clear from the scoping comments that impacts to the listed species of the Apalachicola from operation of the federal project in conjunction with upstream withdrawals remain major concerns of downstream interests. When the consultation ends, further litigation will inevitably begin again.

While the court in the Tri-State Water Wars ultimately upheld the Service's findings, the Service imposed an incidental take limit on the number of mussels that could be taken by the Corps' operations. Should the dam operations exceed this amount of take, re-initiation of consultation would be required and a new biological opinion would likely have to be developed.[60] If not, unlawful take would occur. This case illustrates the limitations placed on water managers to insure the protection of listed species.

Another case illustrating the challenges water managers face in protecting listed species is the more than decade long saga involving the Everglade snail kite and Cape Sable seaside sparrow in the southern Everglades.

Case Study: The Cape Sable Seaside Sparrow Litigation

Many of the Cape Sable seaside sparrow's woes began decades ago when Congress first authorized the "Central and Southern Florida Project for Flood Control and Other Purposes" (C&SF Project).[61] This project called for the construction of thousands of miles of levees and canals and other water control structures to provide flood protection and agricultural benefits to South Florida.[62] The C&SF Program fundamentally altered the flow of water throughout the Everglades ecosystem, leaving some areas within and north of Everglades National Park too wet, and others too dry. Changes in the timing and depth of water flows in the Southern Everglades proved to be harmful to the Cape Sable Seaside sparrow, a short-lived species that nests on the ground and depends on specific water levels for reproductive success.[63] Listed under the Endangered Species Act in 1967, and receiving initial critical habitat protection in 1977, the

[57] In re Tri-State Water Rights Litigation, 40 ELR 20204 M.D. Fla. 2010) (Memorandum and Order in Phase 2).
[58] U.S. Fish and Wildlife Service, Biological Opinion on the U.S. Army Corps of Engineers, Mobile District, Revised Interim Operating Plan for Jim Woodruff Dam and the Associated Releases to the Apalachicola River (May 22, 2012).
[59] http://www.sam.usace.army.mil/Missions/PlanningEnvironmental/ACFMasterWaterControlManualUpdate.aspx
[60] *See* 50 C.F.R. § 402.16.
[61] Miccosukee Tribe of Indians of Florida v. U.S., 566 F.3d 1257, 1261 (11th Cir. 2009).
[62] Id.
[63] Id. at 1262.

sparrow is one of the most critically endangered songbirds in North America.[64] Found across the southern Everglades in six geographically separated subpopulations, the sparrow population remains in decline, due in large part to hydrologic alteration.[65]

It was as a result of this decades long project and its impacts on wildlife that the Corps began developing and implementing revisions to its water management operations in 1998. The following year the U.S. Fish & Wildlife Service issued a "jeopardy" and "adverse modification" Biological Opinion on the Corps' modified water deliveries project to Everglades National Park.[66] The Service determined that continued water releases through certain S-12 structures would lead to the extinction of the sparrow but warned that "stacking" high water above the S-12 structures might adversely affect another endangered bird-the Everglade Snail Kite.[67]

Following several interagency meetings, the Corps subsequently developed a different plan known as the Interim Operating Plan ("IOP").[68] The Service soon amended the 1999 Biological Opinion to include the IOP as a second RPA to avoid jeopardizing the sparrow.[69] The Corps began implementing IOP in 2002. IOP changed the S-12 water release schedule to create at least sixty continuous days each year, during sparrow breeding season, in which water below the gates would remain under 6 feet.[70] The Tribe sued in 2005 challenging the Service's approval of IOP. The next year, the Service and Corps reinitiated consultation and prepared a new biological opinion but still found the snail kite would not be jeopardized by the IOP.[71] The Tribe amended their complaint and challenged the Service's new biological opinion. A federal district court ruled in favor of the Service and the Tribe appealed. In 2009, the Eleventh Circuit upheld the Service's conclusion that the kite would not be jeopardized by the IOP but invalidated the Service's incidental take statement for failing to provide an adequate trigger for re-consultation.[72] The Court determined that the Service should have quantified the amount of "take" or explained why doing so was impractical. The Service responded by amending its incidental take statement. In 2010, the District Court upheld the ITS as it pertained to the snail kite and the wood stork but invalidated the ITS with respect to the sparrow.[73] The Service later amended the ITS in response to the District Court's decision. Another federal court ruled against the Tribe in its suit against the United States alleging that the Corps' operations violated the Tribe's equal protection rights under the Constitution.[74]

[64] Id.
[65] Id.
[66] Id. at 1263.
[67] Id.
[68] Id.
[69] Id.
[70] Id.
[71] Id. at 1264.
[72] Id. at 1275.
[73] Miccosukee Tribe of Indians of Florida v. United States, 697 F.Supp.2d, 1324, 1346 (S.D. Fla. 2010).
[74] Miccosukee Tribe of Indians of Florida v. United States, 722 F.Supp.2d 1293, 1310 (S.D. Fla. 2010).

The Corps and Service developed the "Everglades Restoration Transition Plan (ERTP) Phase 1" Project to replace the IOP pending the implementation of Everglades restoration projects. The Service prepared a "no jeopardy" biological opinion on ERTP Phase 1 in March 2011 describing ERTP Phase 1 as a modification of IOP with "additional operational flexibilities to provide hydrological improvements… while maintaining conditions south of Tamiami Trail until full implementation of the Combined Operational Plan (COP) and ultimately the CERP."[75] The Service anticipates ERTP-1 will be implemented through January, 2016 and will "result in small but ecologically meaningful hydrologic improvements in WCA-3 until such time that the historic flow way is re-established."[76] Given ongoing concerns about the sparrow and the snail kite, the U.S. Department of Justice believes that further litigation is likely as the Corps implements the ERTP.[77]

In addition to the litigation involving the Corps' IOP, the Center for Biological Diversity and others filed suit against the Service's revision to the critical habitat designation for the sparrow arguing that it failed to designate the area containing sub-population A of the sparrow. A federal district court in 2011 ruled against the plaintiffs finding that the Service provided a rational basis for failing to designate the area as it would interfere with future CERP efforts to return more natural water flows to the Everglades.[78] The Service had argued that a critical habitat designation would have imposed a "static restriction on an area that is beginning a dynamic and somewhat unpredictable revitalization."

Although some may characterize the ongoing dispute as pitting one species against another, this is a false choice. The future of both species, as well as countless others, depends on the re-establishment of natural flows throughout the Everglades from the top down, while providing adequate flood protection to communities such as the Miccosukee Tribe. Giving up on the sparrow will be a failure for Everglades restoration and will provide little incentive elsewhere to restore the rest of the system, much less the snail kite population occurring within the Southern Everglades and elsewhere to the North.

Section 9 Take and Watershed Habitat Conservation Plans

If a modification of flow actually kills or injures listed wildlife by impairing essential behaviors, and there is sufficient proof of causation and foreseeability,[79] then it is a violation of the Section 9 prohibition on take. Where no lawful incidental take statement or permit is in place, state and regional water managers can face potential liability and the enjoinment of their operations.[80] In

[75] Letter from Paul Souza, Field Supervisor, U.S. Fish & Wildlife Service to Colonel Al Pantano, District Commander, U.S. Army Corps of Engineers (Nov. 17, 2010).
[76] Id.
[77] "A Tale of Two Species" at http://www.justice.gov/enrd/4696.htm.
[78] Center for Biological Diversity v. Salazar, 770 F. Supp. 2d 68 (D.D.C. 2011).
[79] Paul Boudreaux, "Understanding 'Take' in the Endangered Species Act," 34 Arizona St. L. J. 733 (2002).
[80] *See* 16 U.S.C. § 1540 (authorizing any person to bring suit to "enjoin" any person who is alleged to be in violation of any provision of the Act).

the Edwards Aquifer litigation (discussed earlier in the context of consumptive uses) the court determined the FWS had not identified the minimum flows necessary to avoid a take of the species and it had not worked with local authorities to develop a program for the regulation of groundwater pumping to protect those species. Those failures, the court held, constituted a take. The remedies ordered included the identification of necessary stream flows and the implementation of groundwater regulation, preferably by the state.[81]

The section 9 prohibition on take has been asserted more recently in an effort to protect flows from central Texas to the Gulf coast, where our most iconic endangered species, the whooping crane, winters in the Port Aransas National Wildlife Refuge. Blue crabs, an important food for the cranes, are supported by freshwater flows into the estuary, which are threatened by consumptive uses upstream. The Aransas Project[82] sued the Texas Commission on Environmental Quality alleging that the commission has harmed cranes by authorizing withdrawals and diversions of surface water.[83] Although the trial was concluded in December 2011, no judgment has yet been rendered. The primary relief sought by the plaintiffs is for the agency to seek an incidental take permit and habitat conservation plan from the U.S. Fish and Wildlife Service.

HCPs can be very limited in scope, minimizing and mitigating the "take" caused by a single project. They can also be very broad, minimizing and mitigating impacts over very large areas and covering not only currently-listed species, but those that may be listed in the future. The Edwards Aquifer HCP, for example, covers eight listed species and three that have been petitioned for listing.

One of the most ambitious efforts currently underway is development of the Bay Delta Conservation Plan in California[84]. The geographic scope of the plan is immense, the delta of the San Joaquin and Sacramento Rivers. It covers sixty species, including eleven species of fish, and will be implemented through changes to water management operations, consumptive use, the acquisition and management of natural areas, the management of invasive species and numerous other actions by local, state, regional and federal entities. The planning and implementation horizon is fifty years and the plan contains a detailed program for adaptive management.

Since the 1990s, the number of habitat conservation plans applied for each year has risen dramatically[85] and some have turned to watershed based HCPs such as the Edwards Aquifer HCP and Bay Delta Plan in an attempt to address their water planning woes. Large-scale HCPs

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[81] Sierra Club v. Lujan, 1993 WL 151353 (W.D.Tex. 1993).
[82] http://thearansasproject.org/
[83] The Aransas Project v. Bryan Shaw, Case no. 2:10-CV-00075, S.D. TX, complaint filed March 10, 2010 (available at http://thearansasproject.org/wp-content/uploads/2010/03/Complaint_031010.pdf.
[84] http://baydeltaconservationplan.com/Home.aspx
[85] *See* Karen P. Sheldon, "Habitat Conservation Planning: Addressing the Achilles Heel of the Endangered Species Act," 6 N.Y.U. Envtl. L.J. 279, 308 (1998) (noting that since 1994 there has been a "verifiable explosion in the numbers…of Habitat Conservation Plans").

have significant potential to further the Act's mission of conserving ecosystems and the species upon which they depend, but the devil is in the details. Much like the rural land stewardship program under Florida law,[86]-an incentives based program in which landowners conserve rural, agricultural, or environmental lands in exchange for the right to develop other areas-the success of an HCP depends on the quality of the resources being protected and the establishment of enforceable measures that will ensure their long-term preservation.

Potential Implications for Florida

The future listing of dozens of species, such as those identified by the Center for Biological Diversity's "404 petition," could have significant implications for Florida water management decisions. Many of these and other species depend on healthy, natural flow regimes. Unless proactive steps are taken now to get ahead of the extinction crisis, a situation similar to the Edwards Aquifer could occur. This could entail costly, protracted litigation, the development of large-scale, detailed habitat conservation plans and/or the establishment of rigorous minimum flows and levels (MFLs) to avoid jeopardizing or taking listed species.[87] Florida could learn a few things from Texas and California and address impairments to water flows and levels before we reach a crisis level.

One step in the right direction is an ongoing planning effort between the U.S. Army Corps of Engineers and the South Florida Water Management District to establish a regulation schedule for the Kissimmee Chain of Lakes, which may lead to the creation of a water reservation, or other type of "protection" tool. This is a critical step forward because approximately $1 billion has been spent so far to restore the Kissimmee River. A water reservation or other protective would help protect water that could otherwise go to Orlando development and utilities.

Protecting Species From Climate Change and Sea Level Rise

Global climate change is perhaps the most challenging and complex environmental issue we have to face. As greenhouse gases prevent heat from the Earth's surface from escaping, surface temperatures rise. The rise in temperature causes glaciers to melt more rapidly and water volume expansion, which in turn causes sea levels to rise. While, there remains debate as to how much of the Earth's warming can be attributed to human activities, sea levels are rising and the

[86] *See* §163.3248, Fla. Stat.
[87] *See* §§ 373.042 and 373.0421, Fla. Stat. (providing the authority of the water management districts to establish minimum flows and levels that identify the point at which further withdrawals will cause significant harm to water resources).

planet is warming rapidly.[88] As a result, coastal communities as well as whole island nations face an uncertain future.[89]

Climate change and sea level rise also pose an enormous threat to endangered species and the ecosystems upon which they depend. One of the areas most susceptible to sea level rise in the United States is Florida. Climate scientists have projected that Florida may experience as much as a 5-foot rise in sea level over the next century.[90] This rise in sea level may not only result in the complete loss of some coastal areas, but more inland freshwater systems could be significantly impacted by saltwater intrusion. Species that are only found in small, isolated parts of the nation face a significant risk of extinction while others will be challenged to migrate inland to search for new places to live. There they will be confronted by additional challenges, including humans also seeking inland homes and higher ground.

As Vanderbilt University Law Professor J.B. Ruhl remarks, there really is no "analog" to the climate change crisis we face -- we are in unchartered territory and we cannot fully predict just what this may mean for our natural systems, let alone individual species.[91] Moreover, laws such as the Endangered Species Act are not equipped to address the problem alone. It will take a comprehensive, large-scale, and integrated approach to minimize, mitigate and adapt to the impacts of climate change.[92] Wildlife protection laws, such as the ESA however, can provide a useful tool in protecting species from the impacts.

In addition to utilizing the listing, consultation, take and recovery planning provisions to identify and protect species most threatened by the effects of climate change,[93] the ESA contains a few lesser-known provisions that may offer additional avenues for protection, in particular for sea level rise and the impacts to our state's water resources.

One of these lesser-known provisions is Section 5, which directs the Secretary of the Interior to "establish and implement a program to conserve fish, wildlife, and plants, including those, which are listed as endangered or threatened species."[94] To this end, Section 5 calls for the Secretary to utilize the land acquisition and other authority under the Fish and Wildlife Act of 1956, the Fish and Wildlife Coordination Act and the Migratory Bird Conservation Act. It further instructs the

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[88] For example, 2012 was the hottest year in the United States history. Justin Gillis, *It's Official: 2012 Was Hottest Year Ever in the U.S.*, N.Y. Times, Jan. 7, 2013, http://www.nytimes.com/2013/01/09/science/earth/2012-was-hottest-year-ever-in-us.html?hp&_r=0.

[89] *See* Tim Lister, "Rising Sea Level Puts Island Nations Like Nauru at Risk, CNN, (Dec. 5, 2012); Kristin Choo, "Washed Away: As Sea Levels Rise, Island Nations Look to the Law to Fend Off Extinction," American Bar Association Journal, (Mar. 1, 2012).

[90] *See* Benjamin Strauss and Robert Kopp, "Rising Seas, Vanishing Coastlines, New York Times (Nov. 24, 2012); Greg Allen, "Florida Faces Drastic Change From Sea Level Rise, National Public Radio (Dec. 11, 2009).

[91] *See* J.B. Ruhl, "Climate Change and the Endangered Species Act: Building Bridges to the No-Analog Future," 88 B.U.L.Rev. 1, 2 (2008).

[92] *See* Ruhl at 31-62

[93] *See* Ruhl at 32-53. Professor Ruhl provides a thorough analysis of how many of the Act's provisions can be used to help conserve species threatened by the effects of climate change.

[94] 16 U.S.C. § 1534.

Secretary to authorize to acquire by purchase, donation, or otherwise, lands, waters, or interest therein. Section 5 also provides that funds made available under the Land and Water Conservation Fund Act of 1965 may be used for purposes of acquiring lands, waters or other interests. In 1989, the Department of the Interior invoked Section 5 to establish the Florida Panther National Wildlife Refuge. The purpose of the more than 26,000-acre refuge is to protect the Florida Panther and its habitat. The Everglades Headwaters National Wildlife Refuge is another recent example of acquiring land for endangered species conservation under Section 5.

Case Study: The Everglades Headwaters National Wildlife Refuge

In January 2012, the Department of Interior turned to the ESA again, in addition to other federal wildlife laws, to establish the Everglades Headwaters National Wildlife Refuge. When completed the Refuge and Conservation Area will include 150,000 acres of conservation easements and fee simple lands aimed at conserving the Kissimmee River Basin in central Florida's Polk, Osceola, Okeechobee, and Highlands counties. The region is home to several federally listed species including Audubon's Crested Caracara, Everglade snail kite, Florida Grasshopper Sparrow, and wood stork.

One of the four overarching goals of the Refuge within the upper Everglades watershed is to develop "a more connected and functional conservation landscape that will provide effective habitat connections between existing conservation areas and allow habitats and species to shift in response to urban development pressure and global climate change."[95] The Land Protection Plan for the Refuge further states that the Refuge will help address conservation needs in Southern Florida that may be impacted by the effects of climate change, by addressing issues such as the spread of invasive species and increasing the resiliency of the landscape.[96]

By acquiring and protecting lands within this region the Service is taking proactive steps towards preserving more inland areas that will undoubtedly face increased development pressure in the years ahead. Many of these areas include important freshwater wetlands located within the Kissimmee River Basin. The refuge and conservation area also promises to provide necessary wildlife corridors and linkages for species that will be forced to move inland as more coastal areas become subjected to sea level rise. Although not all species will be capable of adapting to the loss of habitat caused by sea level rise, and more intensive measures such as relocation may be necessary for some, others may be able to adapt and seek refuge in these more inland areas. By strategically identifying sensitive habitats, and protecting these areas through the establishment of national wildlife refuges and other public lands, the Service can take proactive measures now to help conserve listed species in the face of climate change.

[95] United States Fish & Wildlife Service, Everglades Headwaters Conservation Partnership: Land Protection Plan for the Establishment of the Everglades Headwaters National Wildlife Refuge and Conservation Area, 8 (Jan. 2012).
[96] Id. at 14.

In addition to Section 5, Section 7 (a)(1) may provide an additional avenue for conserving species threatened by climate change. While section 7(a)(2) sets forth the consultation process-the Act's central enforcement provision-section 7(a)(1) provides:

> The Secretary shall review other programs administered by him and utilize such programs in furtherance of the purpose of this chapter. All other Federal agencies shall, in consultation with and with the assistance of the Secretary, utilize their authorities in furtherance of the purposes of this chapter by carrying out programs for the conservation of endangered species and threatened species listed pursuant to section 1533 of this title.[97]

Although the courts have not said just what is required of federal agencies under Section 7(a)(1), the Fifth Circuit has held that it does impose an affirmative duty on each agency to conserve every listed species.[98] In the *Florida Key Deer* case, discussed earlier, the Eleventh Circuit ruled that while agencies may have discretion in developing conservation programs, they must carry out such programs. "Total inaction is not an option."[99]

In light of this statutory command, agencies should not only develop their own conservation programs but also include in these plans, strategies to address the needs of listed species affected by climate change. For example, the United States Department of Transportation could develop a conservation program that integrates climate change and listed species into future transportation planning considerations. Similarly, the Department of Energy could adopt and integrate a similar program when developing a national energy policy.

Lastly, Section 6 of the Act may provide additional protections for species threatened by climate change. Section 6 enables the U.S. Fish & Wildlife Service to enter into "cooperative agreements" with States.[100] These cooperative agreements allow States to receive federal funding for the development and implementation of management plans, scientific research, and monitoring activities. When paired with one of the stated goals of the ESA-directing the Service to cooperate with State and local agencies to "resolve water resource issues in concert with conservation of endangered species"[101] – section 6 provides a useful conservation tool to address the needs of species impacted by climate change. For example, state wildlife agencies, such as the Florida Fish & Wildlife Conservation Commission, which is one of the more progressive of the agencies with respect to recognizing the wide ranging effects being caused by climate change, could provide additional, much needed research on the impacts of sea level rise as well as provide critically important species and habitat monitoring to provide necessary baseline information and to inform future adaptive management decisions. Further, Florida, and indeed all states, should integrate climate change considerations into their state and federal species and conservation area management and recovery plans.

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[97] 16 U.S.C. § 1536(a)(1).
[98] Sierra Club v. Glickman, 156 F.3d 606, 616 (5th Cir. 1998).
[99] Florida Key Deer v. Paulison, 522 F.3d 1133, 1146-47 (11th Cir. 2008).
[100] *See* 16 U.S.C. §1535.
[101] 16 U.S.C. § 1531(c)(2).

STATE AND LOCAL LAWS

While the focus of this white paper is on using the Endangered Species Act to protect and restore water resources, aquatic ecosystems and imperiled species, additional protections lie in both state and local laws. A full discussion of these laws is beyond the scope of this paper but below is a brief summary of some of the laws that offer additional wildlife protections.

Florida Threatened and Endangered Species Act

As with most legal regimes, the federal ESA does not prevent a state from adopting laws that go further in protecting wildlife; the only restraint is that state law cannot hinder the application of federal law.

Florida enacted a Threatened and Endangered Species Act in 1977 (now codified at Florida Statutes section 379.2291). In the law, the Florida Legislature recognized that the Sunshine State "harbors a wide diversity of fish and wildlife and that it is the policy of this state to conserve and wisely manage these resources, with particular attention to those species defined by the Fish and Wildlife Conservation Commission, the Department of Environmental Protection, or the United States Department of Interior, or successor agencies, as being endangered or threatened."

Much of the Florida law parallels the federal statute, including key definitions of *take* and *incidental take*. It defines an *endangered* species as one whose " prospects of survival are in jeopardy due to modification or loss of habitat; overutilization for commercial, sporting, scientific, or educational purposes; disease; predation; inadequacy of regulatory mechanisms; or other natural or manmade factors affecting its continued existence." A *threatened* species is one that "may not be in immediate danger of extinction, but which exists in such small populations as to become endangered if it is subjected to increased stress as a result of further modification of its environment."

Much of the detailed applications of the Florida law are set forth in regulations adopted by the Florida Fish and Wildlife Conservation Commission (in the Florida Administrative Code chapter 68A-27) in September 2010. Federally listed endangered and threatened species are given protection under state law, as well. A status of *state-designated threatened species* is determined through a series of numerical formulas concerning population, geographic range, and trends. At this time the code also includes a list of *species of special concern* for which the status has not yet been determined under the new rules. A *native* species or subspecies is one that "occur[s] naturally in Florida or that has been reintroduced into its historic range, rather than occurring in Florida as a result of accidental or deliberate introduction by humans."

One key difference between the federal act and the state act is that the latter lacks a citizen suit provision. Consequently, only the state has the explicit authority to bring enforcement actions against parties found to be in violation of the Act. Citizen challenges to FWC decisions, such as

the issuance of incidental take permits, may be brought under the state Administrative Procedure Act, Chapter 120, Florida Statutes.[102]

Florida Community Planning Act

Under the Florida Community Planning Act, counties and municipalities must adopt and enforce "comprehensive plans" to guide development and land uses within their borders.

Comprehensive plans "shall be based upon relevant and appropriate data and an analysis" of "surveys, studies … and other data"[103] and plans must include several "elements" including a Future Land Use Element, Conservation Element, and Coastal Management Element. These "elements," and the goals, policies and objectives contained therein, are the action-forcing teeth of comprehensive planning law and shape the manner in which development is to occur within the local government's boundaries.

The future land use element designates the allowable location, extent and intensity/ density of various uses of land, and depicts these uses on a map or map series.[104] The existence of wildlife and water resources and their vulnerability to development and other impacts are a primary determinant in the type, intensity/ density and manner of development that is allowed on all land within a local jurisdiction.[105]

The conservation element must identify natural resources that are present within the local government's boundaries, specifically including "areas that are the location of . . . important fish . . . wildlife, marine habitats, … indicating known dominant species present and species listed by federal, state, or local government agencies as endangered, threatened, or species of special concern."[106] The element must also formally adopt principles, guidelines, and standards for conservation.

A comprehensive plan must include a Coastal Management Element if the local government touches the Gulf of Mexico or Atlantic Ocean, or has a dominant plant community of marine species of vegetation and complies with certain parts of the Coastal Management Statute.[107] The coastal management element must be consistent with coastal resource plans prepared and adopted pursuant to law; and contain a land use and inventory map of existing coastal uses,

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[102] For a more detailed discussion of the Florida Threatened and Endangered Species Act, the constitutional authority of the FWC, and ways in which the Act can be strengthened and better utilized for species protection, *see* Jason Totoiu, "Building a Better State Endangered Species Act, An Integrated Approach Toward Recovery," 40 Envtl. L. Rep. 10299-10327 (2010).
[103] § 163.3177 (1)(f), Fla. Stat.
[104] § 163.3177(6)(a)1, Fla. Stat.
[105] Future land use map amendments "shall be based upon … [a] analysis of the suitability of the plan amendment for its proposed use considering the character of the undeveloped land, soils, topography, natural resources, and historic resources on site. § 163.3177 (6)(a)8 b, Fla. Stat. The future land use plan element must also include criteria to "[e]nsure the protection of natural … resources. § 163.3177(6)(a)(3)f, Fla. Stat.
[106] § 163.3177(6)(d)1., Fla. Stat. (2012).
[107] §163.3177(6)(g)., Fla. Stat.

wildlife habitat, wetland and other vegetative communities, an analysis of the environmental impact of development and redevelopment proposed in the future land use plan, and approaches towards addressing water quality issues.

Florida's Community Planning Act enables local communities to protect aquatic ecosystems and wildlife in several different ways. For example, the Act speaks directly and strongly to wetlands protection, requiring that cities and counties "direct future land uses that are incompatible with the protection and conservation of wetlands…away from wetlands."[108]

In *Johnson v. Gulf County*, Florida's First District Court of Appeal reinforced the principle that a local government has the authority under Florida planning law to regulate and prohibit development within wetlands, even when the U.S. Army Corps of Engineers and the Florida Department of Environmental Protection fail to assert jurisdiction over these waters.[109]

The *Johnson* case highlights the authority local governments have to limit development within wetlands-such authority is different from the permitting authorities of the Corps and in many cases may be much more protective. This is because local governments and permitting agencies have different roles in wetlands protection. Whereas state permitting laws prescribe how much environmental damage is allowed by a particular land use, state planning law requires local communities to direct inappropriate or intense land uses away from environmentally sensitive wetlands and enables local governments to consider the "big picture."[110]

When coupled with the home rule authority enjoyed by Florida's cities and counties, the state's Community Planning Act provides ample authority for aggressive local land use planning, based in part on science available from state and federal agencies, that vigorously protects the state's wetlands and the wildlife that depend on these increasingly diminishing habitats.[111] Accordingly, Florida counties such as Martin and Monroe have recognized this authority and generally prohibit impacts to wetlands.[112]

Local communities can also turn to comprehensive planning to protect water quality. Beyond establishing the basic allowable uses and intensities based upon the inherent suitability and location of all land within its jurisdiction, among the most effective planning and zoning approaches to protect water quality are strong local stormwater management requirements, local fertilizer ordinances, and buffer requirements (horizontal, for example, from the edge of surface

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[108] § 163.3177(6)(d)(2)k., Fla. Stat.
[109] "The jurisdiction of these two agencies," wrote the Court, "is not determinative of the county's jurisdiction to administer its comprehensive plan and land use regulations." Johnson v. Gulf County, 26 So.3d 43-44 (Fla. 1st DCA 2009).
[110] *See* Richard Grosso and Jason Totoiu, "Planning and Permitting to Protect Wetlands: The Different Roles and Powers of State and Local Government," 84 Florida Bar Journal No. 4, 39 (April, 2010).
[111] Richard Grosso, "Regulating for Sustainability: The Legality of Carrying Capacity – Based Environmental and Land Permitting Decisions," 35 Nova L. Rev. 711, 713 (Summer 2011).
[112] *See* Grosso and Totoiu, supra note 110.

waters, and vertical, from the depth of underground geologic features) for construction, mining, and other activities, to protect water bodies.

Florida's Community Planning Act may also serve as a valuable tool in protecting species from climate change and sea level rise. The statutory requirements for Coastal Management Elements are particularly applicable to efforts to reduce and respond to the impacts of sea level rise. The Act requires that local government comprehensive plans "restrict development activities where such activities would damage or destroy coastal resources, and that such plans protect human life and limit public expenditures in areas that are subject to destruction by natural disaster."[113] The relevant objectives of a plan's coastal management element must be to maintain, restore, and enhance the coastal environment, preserve all species of wildlife and marine life, protect coastal resources, avoid irreversible loss of coastal resources, and preserve historic resources.[114]

In 2011, the Legislature authorized, but did not mandate, that local governments address the vulnerability of coastal areas to sea-level rise by designating an "adaptation action area" which identifies areas that experience coastal flooding and that are vulnerable to sea-level rise "for the purpose of prioritizing funding for infrastructure needs and adaptation planning."[115]

The Florida Constitution

In addition to establishing Florida's Fish and Wildlife Conservation Commission, an independent authority that is vested with "regulatory and executive powers" of the state with respect to wild animal life, fresh water aquatic life, and marine life,[116] Florida's Constitution includes an explicit "natural resources" protection provision:

> "It shall be the policy of the state to conserve and protect its natural resources and scenic beauty. Adequate provision shall be made for the abatement of air and water pollution and of excessive and unnecessary noise."[117]

Citing this provision, the Supreme Court of Florida in *Department of Community of Affairs v. Moorman*, upheld a local land-use ordinance, which precluded the erection of fences around single-family lots, enacted to allow the endangered Florida Key deer to roam freely around its spatially diminished natural habitats.[118] Reversing an appellate court's ruling that a landowner's rights always trump the rights of the public in environmental protection, the Supreme Court ruled that, under the Florida Constitution, one does not trump the other and that private property rights and the public interest are to be balanced. The Court held "[l]Landowners do not have an

[113] § 163.3178(1) Fla. Stat. (2012).
[114] § 163.3177(6)(g)1.–4., 9., Fla. Stat.
[115] §§ 163.3164(1), and 163.3177(6)(g)10, Fla. Stat.
[116] FLA. CONST. art. IV. § 9.
[117] FLA. CONST. art. II, § 7.
[118] 664 So. 2d 930, 932, 934 (Fla. 1995).

untrammeled right to use their property regardless of the legitimate environmental interests of the State."[119] "The clear policy underlying Florida environmental regulation is that our society is to be the steward of the natural world, not its unreasoning overlord."[120] The Court found that "the State has a legitimate interest in protecting the natural habitat of the Keys and most especially of the Key deer," which the Court observed was "perilously close to extinction."[121] The Court remarked "[t]here is an obvious public interest in such a policy, given the fact that environmental degradation threatens not merely aesthetic concerns vital to the State's economy but also the health, welfare, and safety of substantial numbers of Floridians."[122]

CLOSING THOUGHTS AND PRELIMINARY RECOMMENDATIONS

The Endangered Species Act has proven to be one of our strongest wildlife protection laws. The success of the law in safeguarding species from extinction, however, is only as good as the steps the Federal government takes in advancing species recovery and enforcing the Act's provisions. Below are just a few recommendations to preserve the integrity of the statute and to help advance the recovery of listed species occurring in Florida.

Fund and Implement CERP projects to Advance Species Recovery

The U.S. Fish & Wildlife Service has recognized the valuable role that restoration projects such as CERP and the Kissimmee Restoration project play in species recovery, particularly for the wood stork. The proposed down listing of the stork, however, does not mark mission accomplished. The bird is still years away from achieving the necessary number of breeding pairs to warrant de-listing. Moreover, the fate of the critically imperiled Cape Sable seaside sparrow will depend in large part on the re-establishment of more natural water flows in the Southern Everglades. The Federal and State governments must continue to make Everglades restoration projects a priority and allocate sufficient funding to insure that future projects are successfully implemented so that species such as the sparrow, snail kite, and wood stork can recover.

Strengthen the Service's Environmental Baseline and Cumulative Effects Analysis in Biological Opinions

In assessing whether a proposed federal action complies with section 7, the Service assesses the status of an affected species and considers whether the effects of the proposed action, together with likely cumulative effects, are likely to jeopardize the continued existence of the species. In performing this analysis, however, the Service considers the *entire* listed species as its basis of comparison, effectively asking whether the proposed action will itself jeopardize the listed species

[119] Id. at 931.
[120] Id. at 932.
[121] Id.
[122] Id. at 933

as a whole.[123] The agency follows a similar path in assessing whether a proposed action destroys or adversely modifies designated critical habitat, asking whether a single project will impair the ability of the *entire* area designated as critical habitat to allow for recovery of the species.[124]

This "straw that breaks the camel's back" approach to assessing jeopardy and adverse modification of critical habitat under section 7 presents significant problems. First, this methodology makes it relatively easy for the Service to approve an individual project by observing that its impacts are relatively small compared to a much broader population and large overall critical habitat designation. For example, the Service continues to use the percentage of total panther habitat impacted by a particular project as a primary basis for finding that the project will not cause jeopardy to panthers.[125] The Service continues to downplay and even dismiss demonstrable adverse impacts on panther habitat because they represent only a small percentage loss of the panther's overall range. The Service's approach is not only an overly simplistic exercise – counting all habitat is more or less the same – but it also assumes that the panther's survival, much less recovery, can somehow be met so long as the consulted-on project of the day doesn't place too many more straws on the back of an already overburdened camel.

Additionally, the Service's method of assessing section 7 compliance places a premium on tracking the precise current status of a species and its critical habitat to ensure that a proposed new development will not jeopardize the continued existence of a species or adversely modify its critical habitat. In other words, in considering whether an additional straw is going to break the camel's back, one needs to keep careful track of how many straws the camel is already carrying. For most species, however, the Service has no means of accounting for ongoing threats that should factor into a species-wide or critical habitat-wide section 7 analysis, such as intra-species aggression, vehicle collisions, disease, and fragmentation/isolation of subpopulations. Moreover, cumulative effects – defined by section 7 regulations as future non-federal actions that affect the species and its critical habitat – are also seldom accurately estimated and considered by the Service. Could we be reaching a tipping point where any greater loss of habitat could trigger an exponential increase in risks to listed species?

Lastly, the Service lacks a systematic program for tracking the cumulative incidental take of listed species that the agency itself has authorized due to past agency actions, nor does it accurately

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[123] *See* Endangered Species Consultation Handbook at 4-36 (1998), available at http://www.fws.gov/endangered/esa-library/pdf/CH4.PDF

[124] For example, The Ninth Circuit upheld a FWS biological opinion concluding that a proposal to pave over nearly 250 acres of wetlands designated as critical habitat would not destroy or adversely modify critical habitat. FWS concluded that because this area represented only a small percentage of the overall acreage designated as critical habitat for the species, loss of the habitat in the project area would not impair the ability of the entire designated critical habitat to protect recovery of the species. Butte Environmental Council v. Corps of Engineers, 620 F.3d 936, 948 (9th Cir. 2010).

[125] Biological opinions from the South Florida Ecological Services Field Office of the U.S. Fish & Wildlife Service can be viewed at: http://www.fws.gov/verobeach/verobeach_old-dont_delete/sBiologicalOpinion/index.cfm

track the amount of critical habitat already destroyed.[126] When this is coupled with the lack of a centralized database on all federal, state, and private actions that affect listed species, the Service is not likely to be accurately assessing the current status of listed species, as well as the total impacts on listed species and critical habitat due to a proposed federal action and cumulative effects of non-federal actions that also affect listed species and their habitat. Therefore, the Service in most cases is issuing biological opinions that cannot accurately assess whether a proposed project will in fact jeopardize listed species or destroy or adversely modify critical habitat.

In view of the requirement that the Service must not only consider how an action will impact the survival but also the *recovery* of a listed species,[127] it is imperative that the Service take the necessary steps to insure accuracy in its decision-making and explain not just how much habitat a species stands to lose as a result of a particular project, but how the loss of that habitat as well as the cumulative loss of habitat resulting from all other projects are affecting the species or its critical habitat will impact the species' recovery.

Develop a Tool to Track Consumptive Water Uses

Water is a finite resource. Yet, the state lacks a comprehensive tool to track just how much water it is permitting away and just how much water remains for the natural system. In many locations, Water Management Districts continue to issue consumptive use permits without knowing how much water is left to draw from. Without this information, the State may not only be underestimating the cumulative effects consumptive uses are having on wildlife, but may also not be able to plan far enough in advance to insure there is adequate water available to address potential threats down the road. The water management districts should develop a system wide ledger that keeps track of how much water is being permitted away and how much water remains available.

Reserve an Adequate Supply of Water to Protect Our State's Investment in Kissimmee River Restoration

The U.S. Army Corps of Engineers and the South Florida Water Management District should establish a regulation schedule for the Kissimmee Chain of Lakes, which protects enough water to insure the long-term success of the $1 billion Kissimmee River restoration project.

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[126] *See* Jason Totoiu, "Quantifying, Monitoring, and Tracking 'Take' Under the Endangered Species Act: The Promise of a More Informed Approach to Consultation," 41 Envtl. L. 165 (Spring, 2011). In 2009, the Government Accountability Office issued a report documenting FWS' inability to track even incidental take that the Service itself had authorized. GAO warned "without cumulative take information, the Service may not be able to effectively evaluate the collective impacts of federally authorized actions over time, across multiple offices, and across species' ranges. Although one action may not unduly harm a listed species, cumulative effects over time and across landscapes could lead to a species' demise without the Service's knowledge or ability to respond." GAO Report 09-550 at 26 (2009).

[127] National Wildlife Federation v. National Marine Fisheries Service, 481 F.3d 1224 (9th Cir. 2007).

Preserve Habitat in the Face of Climate Change

As discussed earlier, the Everglades Headwaters National Wildlife Refuge is a promising initiative to help tackle the issue of climate change and sea level rise by preserving habitat in more inland areas of the State. The preservation of these areas could provide necessary habitat linkages and corridors and relocation sites for species affected by sea level rise. The Department of Interior should remain committed to this bold plan and insure this project and others like it are adequately funded and implemented to advance species recovery in the face of global climate change.