

The nation's storied wetland is the focus of the world's largest environmental restoration project. But will that be enough?

BY MICHAEL GRUNWALD  
PHOTOGRAPHS BY CARLTON WARD JR.

# Everglades





**ON DECEMBER 11, 2000,** the Supreme Court heard oral arguments in *George W. Bush, et al. v. Albert Gore, Jr., et al.* The deadlocked presidential election had exposed a polarized nation, and pundits were describing Governor Bush's "Red America" and Vice President Gore's "Blue America" as if they were separate countries at war.

But at the White House that day, a cease-fire was in effect. In the heat of the partisan fight over the Florida recount, President Bill Clinton was signing a bipartisan \$7.8 billion bill to revive the Florida Everglades, the largest environmental restoration effort in history. And a former Miami developer named Jeb Bush, who happened to be Florida's governor as well as the Republican nominee's brother, was standing by the Democratic president's side.

If Florida's political swamp was tearing Americans apart, Florida's actual swamp was bringing them together. "We're here to talk about something that's going to be long-lasting, way past counting votes," Jeb Bush said after the Oval Office ceremony. "This is the restoration of a treasure for our country."

Today, just about everyone agrees that the Everglades is a national treasure. It's a World Heritage Site, an International Biosphere Reserve, the most famous wetland on earth. It's a cultural icon, featured in Carl Hiaasen novels, *Spider-man* comics, country songs and the opening credits of "CSI: Miami," as well as the popular postcards of its shovel-faced alligators and spindly legged wading birds. It's the ecological equivalent of motherhood and apple pie; when a presidential aide on NBC-TV's "The West Wing" was asked the most popular thing the president could do for the environment, he replied, "Save the Everglades."

But there was once an equally broad national consensus that the Everglades was a worthless morass, an enemy of civilization, an obstacle to progress. An 1848 government report deemed it "suitable only for the haunt of noxious vermin, or the resort of pestilential reptiles." Explorers described it as a muddy, mushy, inhospitable expanse of razor-edged saw grass in shallow water—too wet to farm, too dry to sail, too unpredictable to settle. Americans believed it was their duty and destiny to drain this "God-forsaken" swamp, to "reclaim" it from mosquitoes and rattlesnakes, to "improve" it into a subtropical paradise of bountiful crops and booming communities. "Draining the swamp" came to mean solving a festering problem, and converting wetlands into productive lands was considered the essence of conservation. Hadn't God instructed man to subdue the earth and take dominion over all the living creatures that moveth upon it?

From *The Swamp*, by Michael Grunwald. Copyright © 2006 by Michael Grunwald, published by Simon & Schuster.

In the Everglades, man would learn the limits of that dominion. He would recognize the cost of his abuses against nature, and he would finally begin to try to make amends.

THE NATURAL EVERGLADES was not quite land and not quite water, but a soggy confusion of the two.

It was a vast sheet of shallow water spread across a seemingly infinite saw grass prairie, a liquid expanse of muted greens and browns. It had the panoramic sweep of a desert, except flooded, or a tundra, except melted, or a wheat field, except wild. It was studded with green teardrop-shaped islands of tangled trees and scraggly shrubs, and specked with white spider lilies and violet-blue pickerelweeds. But mostly it looked like the world's largest and grassiest puddle, or the flattest and wettest meadow, or the widest and slowest-moving stream. It had the squish and the scruff of an untended yard after a downpour, except that this yard happened to be larger than the state of Connecticut.

The Everglades seeped all the way down Florida's thumb, from the giant wellspring of Lake Okeechobee in the center of the peninsula to the ragged mangrove fringes of Florida Bay and the Gulf of Mexico, a sodden savanna more than 100 miles long and 60 miles wide—just grass and water, water and grass, except for the tree islands and wildflowers that dotted the grass, and the lily pads and algal mats that floated on the

**"This is a country that must be understood," said Zane Grey, the novelist and snook fisherman.**

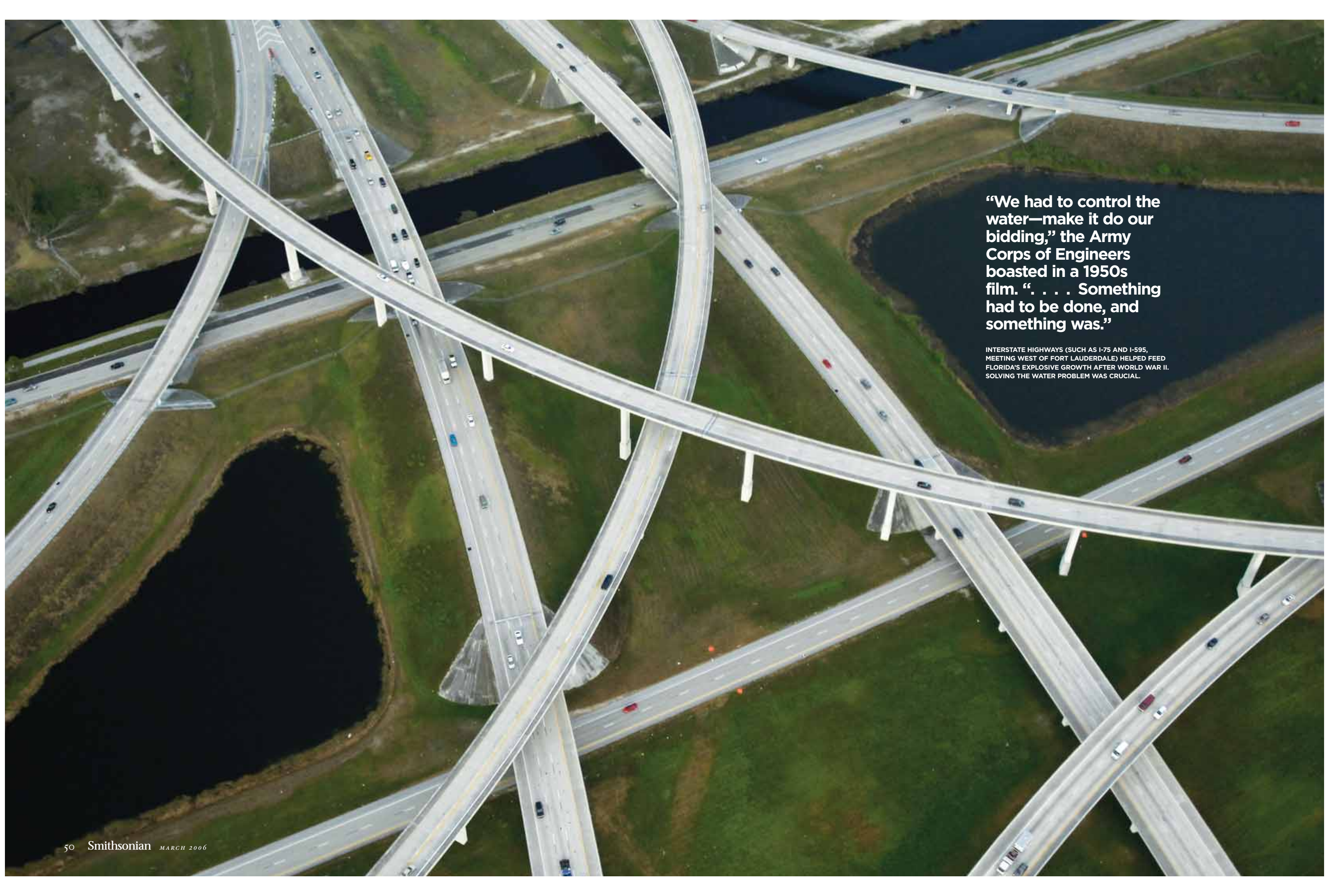
water. The Seminole Indians, who took refuge there in the 19th century, called it Pa-Hay-Okee, or Grassy Water. The bard of the Everglades, Marjory Stoneman Douglas, later dubbed it the River of Grass.

The Everglades was almost perfectly flat—no majestic canyons, rugged cliffs or rolling hills, no glaciers, geysers or craters. Even Everglades National Park's first superintendent admitted that its landscape lacked a certain flair, summarizing its attractions as "lonely distances, intricate and monotonous waterways, birds, sky and water." The Everglades was also an incomparably tough slog. It lacked shade and shelter, high ground and dry ground. Breathing its heavy air felt like sucking on cotton. Wading through its hip-deep muck felt like marching in quicksand. Penetrating its dense thickets of sharp-toothed saw grass felt like bathing in broken glass. And there was something downright spooky about its bellowing alligators, grunting pig frogs and screeching owls—and its eerie silences. "The place looked wild and lonely," a hunter wrote after an 1885 visit. "About three o'clock it seemed to get on Henry's nerves, and we saw that he was crying, he would not tell us why, he was just plain scared."

THE NATURAL EVERGLADES, FIRST VIEWED ONLY AS "THE HAUNT OF NOXIOUS VERMIN," HOSTS AN ASTONISHING VARIETY OF WILDLIFE (CLOCKWISE FROM UPPER LEFT: A SOUTHERN SWAMP LILY, A GREAT BLUE HERON, AN AMERICAN ALLIGATOR AND A GREAT EGRET).







**“We had to control the water—make it do our bidding,” the Army Corps of Engineers boasted in a 1950s film. “. . . Something had to be done, and something was.”**

INTERSTATE HIGHWAYS (SUCH AS I-75 AND I-595, MEETING WEST OF FORT LAUDERDALE) HELPED FEED FLORIDA'S EXPLOSIVE GROWTH AFTER WORLD WAR II. SOLVING THE WATER PROBLEM WAS CRUCIAL.



The Everglades also teemed with rats, roaches, snakes, scorpions, spiders, worms, deerflies, sand flies and unfathomably thick clouds of bloodthirsty mosquitoes that flew up nostrils and down throats and into ears.

“My advice is to urge every discontented man to take a trip through the Everglades,” an early explorer wrote. “If it doesn’t kill him, it will certainly cure him.”

BUT THE EVERGLADES was more than a river of grass. The vast saw grass marsh—it is technically a marsh, not a swamp, because its primary vegetation is grassy, not woody—was the most distinctive link in an interconnected ecosystem that blanketed almost all of South Florida, from its headwaters near



THE ORIGINAL EVERGLADES WATER FLOW (LEFT) WENT FROM THE KISSIMMEE CHAIN OF LAKES DOWN TO THE FLORIDA KEYS BUT WAS FRAGMENTED (CENTER) BY VARIOUS WATER CONTROL PROJECTS. THE RESTORATION PLAN (RIGHT) MAY EVENTUALLY MIMIC THE ORIGINAL FLOW.

modern-day Orlando down to the coral reefs off the Florida Keys. This ecosystem was a watery labyrinth of lakes and lagoons, creeks and ponds, pine flatwoods and hardwood hammocks, swamps as well as marshes.

Saw grass could be as uninviting to wildlife as it is to people, but the diverse habitats of the broader Everglades ecosystem supported an astonishing variety of life, from black bears to barracudas, turkey vultures to vase sponges, zebra butterflies to fuzzy-wuzzy air plants that looked like hairy psychedelic squid. The Everglades had pterodactyl-like wood storks that snapped their beaks shut in milliseconds, sausage-shaped manatees that devoured 100 pounds of plants a day, four-foot-tall dwarf cypress trees that looked like skeletal bonsai. The Everglades was the only place on earth where alligators (broad snout, fresh water, darker skin) and crocodiles (pointy snout, salt water, toothy grin) lived side by side. It was the only home of the Everglades mink, Okeechobee gourd and Big Cypress fox squirrel. It had carnivorous plants, amphibious birds, oysters that grew on trees, cacti that grew in water, lizards that changed colors and fish that changed genders. It had bot-

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tlenose dolphins, marsh rabbits, ghost orchids, moray eels, bald eagles and countless other species that didn't seem to belong on the same continent, much less the same ecosystem.

For all its mystery and monotony, the Everglades did have a few awesome sights. Pioneer naturalist Charles Torrey Simpson was enthralled by 100-foot-tall royal palms with trunks like concrete pillars, standing guard over its sedge and stream. Artist John J. Audubon nearly swooned over the flocks of wading birds that darkened its skies. And the zoologist Louis Agassiz was overwhelmed by the astonishing profusion of life swimming in the estuaries that ringed it.

But the Everglades was less about beauty than about subtlety and originality. It was less ooh or aah than hmm. If the Grand Canyon was a breathtaking painting, the Everglades was a complex drama, and everything in it had a role. The American alligator, the original Everglades engineer, dug muck out of shallow depressions in the marsh during droughts, creating oases for fish and wildlife. The red mangrove, the original Everglades developer, trapped sediments in its spidery roots until they formed new spits of swampland. Cauliflower clouds funneled and blackened into thunderheads that unleashed spectacular torrents of rain. And that clean, fresh shallow water was the lifeblood of the Everglades, fueling its flora and fauna, recharging its aquifers, keeping its wetlands wet.

“A certain kind of lure began to dawn on me,” wrote Zane Grey, the bestselling Western adventure novelist who was also a record-breaking South Florida snook fisherman. “This is a country that must be understood.”

SOME OF THE FIRST WHITES to wade into the Everglades were U.S. soldiers, and they didn't understand it at all. That's why they failed in their mission to exterminate the Seminole Indians who sought safety in the morass of the marsh. And while some of the explorers did see that the ink-black soil of the Everglades had tremendous agricultural potential, they had no idea how hard it would be to drain. That 1848 government report proclaimed that half a million dollars would be more than enough. The job would ultimately take hundreds of millions.

Gilded Age industrialist Hamilton Disston made the first attempt, digging 80 miles of drainage canals before he ran out of cash. Henry Flagler, who was John D. Rockefeller's right-hand man at Standard Oil before launching a second career building railroads and resorts in Florida, also considered the challenge. Flagler was the visionary force behind Palm Beach, Fort Lauderdale and Miami—as well as a mind-boggling railroad over the ocean to Key West that cost the modern equivalent of half a billion dollars—but he decided he didn't have “the money or the inclination to take up as big a matter as the drainage of the Everglades.”

As recently as 1898, five years after the historian Frederick



CREATION OF THE EVERGLADES AGRICULTURAL AREA, SOUTH OF LAKE OKEECHOBEE, BENEFITED FLORIDA'S SUGAR GROWERS (ABOVE), BUT FERTILIZER-TAINTED RUNOFF IS CHANGING THE EVERGLADES' VEGETATION. WHILE THE ENDANGERED FLORIDA PANTHER LOSES HABITAT, THE NATIONAL HOCKEY LEAGUE'S FLORIDA PANTHERS PLAY IN AN ARENA (BELOW) BUILT AT THE VERY EDGE OF THE EVERGLADES.

The C&SF project made the upper Glades farmable and the eastern Glades a megalopolis. It turned the central Glades into a vast reservoir.



STEPHEN ROUNTREE



Jackson Turner declared the Western frontier closed, an explorer marveled that the Everglades was still “as much unknown to the white man as the heart of Africa.” But a progressive Florida governor named Napoleon Bonaparte Broward was determined to change that. In 1904, Broward declared war on South Florida’s water, vowing to create an Empire of the Everglades with a few canals, shouting, “Water will run downhill!” Drainage, after all, was a hallmark of progress—and of conservation. Florida’s leading conservationist, John Gifford, dedicated a book of Everglades essays to the governor, proclaiming Broward’s drainage scheme “the greatest conservation project in the United States.”

But the Everglades turned out to be a resilient enemy. In dry seasons, Broward’s canals shunted precious water out of the Everglades, fueling muck fires that ravaged wildlife. In rainy seasons, the canals were overwhelmed, and Florida swampland became an enduring real estate punch line: “I have bought land by the acre, and I have bought land by the foot,” one customer complained, “but by God, I have never before bought land by the gallon.” And if it wasn’t yet clear that the Everglades was still untamed, a 1928 hurricane blasted Lake Okeechobee through a flimsy dike and killed as many as 2,500 people, most of them poor black farmhands living in Everglades shanties. It is still the second-worst natural disaster in U.S. history, after the Galveston hurricane of 1900—in loss of human life.

After the storm, President-elect Herbert Hoover—an engineer by training—ordered the U.S. Army Corps of Engineers to prevent another disaster. The corps encircled Lake Okeechobee with a massive dike, and the Everglades began to boom, attracting thousands of new settlers and America’s largest sugar operation. But in 1947, a summer of downpours followed by two autumn hurricanes dropped an unheard-of 100 inches of rain on South Florida, overwhelming Broward’s canals and flooding five million acres for months. “Everglades Is Unconquered Despite Man’s Great Fight,” the *Miami Herald* declared.

Over the next few decades, the Army Corps finally seized control of the Everglades with the Central and Southern Florida Project for Flood Control and Other Purposes, its largest earth-moving effort since the Panama Canal. The C&SF, as the project was called, built or upgraded more than 2,000 miles of levees and canals, along with hundreds of spillways, floodgates and pumps. “We had to control the water—make it do our bidding,” the corps boasted in a 1950s promotional film, *Waters of Destiny*. “Central and Southern Florida just lay there, waiting helplessly to be soaked and dried and burned out again. . . . Something had to be done, and something was.”

The C&SF project not only protected lives and property, it also reclaimed land, stored water and promoted economic growth. It turned the Kissimmee Valley into a cattle empire, the upper Glades into an agricultural empire, the eastern Glades into a suburban megalopolis and the central Glades into vast reservoirs that stored water for farms and cities during droughts, absorbed excess water during storms and recharged the region’s aquifers.

After World War II, Florida grew at four times the national



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THE MIAMI-FORT LAUDERDALE-WEST PALM BEACH CORRIDOR IS NOW THE NATION'S SIXTH-LARGEST METROPOLIS. BUT SOME NEW COMMUNITIES (SUCH AS WESTON, EST. 1996, WEST OF FORT LAUDERDALE) ARE CROWDING THE DIKE ON THE BORDER OF THE EASTERN EVERGLADES.



rate, and while air conditioning, bug spray, interstate highways and Social Security all played a role in the boom, it couldn't have happened without water control. The Everglades had been America's final frontier, but America's engineers were taming it and improving it. Now, the *Waters of Destiny* narrator intoned, it was "calm . . . peaceful . . . ready to do the bidding of man and his machines. Central and South Florida is no longer nature's fool."

BY THE MID-1990S, Florida was everything its founders had imagined and more—a winter playground, retirement haven, sugar bowl and melting pot. It was home to the citrus and cruise industries, to Little Havana and Little Haiti, to the Professional Golf Association and "The Golden Girls," to Disney World and Gianni Versace. The Naples area not only had America's highest concentration of millionaires, it also had the second-highest growth rate, behind Las Vegas. More than 300 people moved to South Florida every day.

But the region was still nature's fool. The Florida Panthers' hockey arena was built so close to the Everglades that an errant slap shot could almost land in the swamp, neatly illustrating the sprawl that was wiping out the actual Florida panther. The near-collapses of Lake Okeechobee, Florida Bay and coral reefs were pummeling bait shops, motel owners and dive shops. Broward County schools were so crowded that students were lining up for lunch at 9:50 a.m.

As bulldozers plowed deeper into the Everglades, downtowns were dying and suburbanites were idling in traffic; Miami was America's poorest city, and the average South Florida commute doubled in a decade. The Miami-Fort Lauderdale-West Palm Beach metropolitan area was becoming an indistinguishable glob of gated communities, Jiffy Lubes, strip malls, Comfort Inns, RV parks, Taco Bells and cloverleaf interchanges. The regional economy was a kind of ecological Ponzi scheme, dominated by low-wage tourism and construction jobs that relied on the constant pursuit of more people and more development that put more stress on nature. There was agriculture too, but most of the region's farms were basically subdivisions awaiting their zoning variances.

Half the Everglades was gone, drained or paved for agriculture or development. The other half was an ecological mess, yo-yoing between fires and floods, increasingly polluted by the effluvia of civilization. Cattails crowded out Everglades saw grass, and 90 percent of the wading birds disappeared.

In October 1995, all 42 members of the Governor's Commission for a Sustainable South Florida—which included developers, farmers and bankers, as well as environmentalists—agreed that the region was going to hell. "It is easy to see that our present course in South Florida is not sustainable," they warned in a unanimous report.

BUT NOW WETLANDS were no longer considered wastelands, and the Everglades was no longer reviled. It was revered, and

Democrats and Republicans competed to save it. The Army Corps of Engineers now compared the Everglades to the Grand Canyon and to Yellowstone National Park. Eventually, Congress ordered the corps to "restudy" the C&SF project. By 2000, an unlikely coalition of developers, environmentalists, agribusinesses, sportsmen and water managers had coalesced around a corps plan to restore the natural flows of the Everglades and save 69 endangered species from extinction.

The 4,000-page document was almost absurdly complex, but its aim was simple: to capture a trillion extra gallons of water that were being shunted out to sea every year and redirect it to farms, cities and the Everglades. It called for 18 above-ground reservoirs covering an area nearly the size of New York City, two below-ground reservoirs retrofitted from limestone quarries in the eastern Everglades and 330 high-tech wells that would inject water a quarter-mile into the earth, to be withdrawn during droughts.

Of course, the plan did not exactly aim to "restore" the Everglades; that would have required the relocation of several million people living west of Interstate 95. The re-engineered Everglades would still be intensely managed and tightly controlled. But the corps predicted that if it could mimic the area's original hydrology, the biology would follow: "The entire South Florida ecosystem, including the Everglades, will become healthy. . . . The numbers of animals—crayfish, minnows,

**"It is easy to see that our present course . . . is not sustainable," a commission warned in 1995.**

sunfish, frogs, alligators, herons, ibis and otters—at virtually all levels in the aquatic food chain will markedly increase."

Scientists at Everglades National Park disagreed. They used the plan's own data to show that it offered swift, sure and lucrative benefits to South Florida's homeowners, developers and agribusinesses, while its benefits for the Everglades were riddled with uncertainties—and delayed for decades. The plan, they wrote to the corps, "does not represent a restoration scenario for the southern, central and northern Everglades." But few politicians were willing to vote against "America's Everglades." The same Congress that had been torn in half by Clinton's impeachment overwhelmingly approved his \$7.8 billion plan for the Everglades. The same Florida legislature that would erupt over Bush v. Gore approved the Everglades restoration without a dissenting vote. And on December 11, 2000, President Clinton and Jeb Bush made history. "This is a model—not just for our country, but for projects around the world," Bush said.

HE WAS RIGHT. The Everglades plan is not only America's blueprint for multibillion-dollar restoration projects in the Great Lakes, San Francisco Bay and Louisiana's coastal wetlands; it is also being touted as a global model for ecosystems such as Africa's Okavango Delta and South America's Pantanal.

But while many Americans believe the Everglades has al-



ready been saved, the ecosystem remains in deep trouble, and the restoration project has been no help yet. Gary Hardesty, the Army Corps planner overseeing the project in Washington, warned in a March 2005 internal memo that it was already dramatically over budget, behind schedule and off track: "It's different from what we told Congress we would do—and it's not restoration!!!" The corps has yet to build the pilot projects that were supposed to test the plan's uncertain technologies. And in an era of federal budget deficits, the outlook for an initiative now priced at \$10.5 billion is increasingly gloomy.

The environmental outlook is worse. In 2004, after four hurricanes churned up 50,000 tons of nutrients in Lake Okeechobee, scientists warned that the lake was becoming a dead zone, and water managers began flushing even more of its dirty waters into fragile estuaries. The result has been a massive increase in toxic "red tides" in the St. Lucie and Caloosahatchee rivers, along with dramatic die-offs of manatees, dolphins and oysters. Meanwhile, invasive species have proliferated throughout the ecosystem, from a seaweed that suffocates coral to a fern that has spread like kudzu. An invasive 13-foot Burmese python recently illustrated the problem in gruesome allegorical form by devouring a native 6-foot gator in Everglades National Park, only to die itself of a ruptured stomach. And as President Clinton mused after signing the Everglades bill, "If we don't do something about climate change, your Everglades is going to be underwater."

But the most daunting threat to the Everglades is still de-

IF THE RESTORATION SUCCEEDS, MORE WATER WILL FLOW THROUGH THE EVERGLADES (PANTHER KEY, ABOVE), BUT THE PLAN RELIES ON UNTESTED TECHNOLOGIES AND GIVES AGRICULTURAL AND RESIDENTIAL WATER USERS PRIORITY OVER THE ECOSYSTEM.

velopment. The Miami-Fort Lauderdale-West Palm Beach corridor has become America's sixth-largest metropolis, sprawling into the Everglades. A recent Brookings Institution study declared the region the ultimate "edgeless city," and developers still press west. One possible destination is the 700,000-acre Everglades Agricultural Area below Lake Okeechobee. It is now dominated by the sugar industry, but new bedroom communities would be even more destructive.

At the same time, southwest Florida is sprawling east into the Everglades. "Haven't we learned our lessons?" the EPA's South Florida director e-mailed the top Army Corps regulator in Florida in 2002. "Apparently not." And the Everglades plan is designed to enable South Florida's growth addiction, not cure it, doubling the region's population to more than 12 million by 2050. One little-noticed provision will launch a \$12 million study of future restoration in southwest Florida. So while the corps spends billions to repair the damage of the past, it is preparing to spend more to repair the damage of the future.

"The Everglades is a test," Marjory Stoneman Douglas used to say. "If we pass, we may get to keep the planet." If we can't pass the test in Florida—with the resources of a rich state and a rich country, with abundant rainfall, with the world's most beloved wetland—it's hard to imagine where we can.