

A Future for the Everglades

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(Ed. note: The Commission was convened to assess the status of Florida's environment, identify threats to it, and recommend ways to protect and manage the state's resources. The Commission's final report was issued in March 1990.)

IN EARLY 1907, JOHN T. STEWART, drainage engineer, U.S. department of Agriculture, traveled in the Everglades conducting a survey of the region. His objective was to select canal routes and determine priority lands for drainage. His diary has provided us details of what this vast area was like before those canals were constructed. His description is instructive, mentioning that "low ridges of sawgrass, myrtle and bay bushes lay between open grassy lakes through which would run a crooked narrow land. Sand can be seen in the bottom of the deeper holes in the channels, these holes being full of fish."

He continues his diary with interviews of citizens regarding his project. "Many in the vicinity of Miami do not want the Glades drained. They think there is land enough for the present. If too much land is improved there will be danger of over production. They are also afraid it will cause the climate to be a few degrees cooler and will cause the coast strip to become drier in the dry season, as they have the impression that the Glades temper the Northwest wind and sub-irrigate the land to the east. What they want is enough drainage to prevent flooding in the rainy season. The general opinion is that the lower Glades are not of much value. . . ."

Only twenty-three years later another view of this area was offered to Congress when the Secretary of the Interior proposed a large National Park. "Its primary value would lie in the opportunities

offered for conservation of the tropical flora and wildlife—particularly the endless varieties of birds and fishes. The area is of national and not merely local interest. The tropical plant and animal life, the excellent fishing, and the bird life, which is remarkable both for the numbers of species and for the abundance of birds . . . are sufficient to give the area a national interest."

In a special report issued in 1932 by the National Park Association the following is illustrative: "No one who has been fortunate enough as we were during our visit to see the thousands upon thousands of Ibis and Herons or various species flocking in at sunset . . . or who has seen the more widely scattered birds on their feeding grounds at a favorable time, such as often occurs along the Tamiami trail . . . can fail to have received an impression of sheer beauty and of the multitudinous vastness of nature as exhibited in these great flocks of birds. . . ."

No one has yet surpassed the eloquence and vision of Marjorie Stoneman Douglas, whose book *Rivers of Grass* gave form and content to the swell of public interest to preserve this majestic area known as the Everglades. These statements I have repeated, and others too numerous to repeat, reflect the values represented and the *promise* of preserving this priceless natural heritage for those yet unborn. This promise was manifested most strongly by the citizens of the State of Florida who gathered themselves together and expressed a collective will. The people of the State of Florida donated over 850,000 acres and two million dollars to fulfill the promise of an Everglades National Park. On

December 6, 1947, President Harry Truman formally dedicated the park, establishing its purpose of preserving the "unique flora and fauna" and the "essential primitive natural conditions."

Since that time, various events have combined to seriously affect the health and productivity of the system. The natural resources in the Glades are now in jeopardy due to the accelerated growth in Dade, Broward, and Palm Beach counties. Large-scale conversion or expansion of agricultural lands have combined to form an urban-agricultural interface which is exerting tremendous pressures on the natural systems of the Everglades and particularly Everglades National Park.

The reality of the promise made in those earlier years now is expressed differently:

- The great flocks of wading birds have been reduced to remnants, experiencing over a 90% decline since the 1930s. Since 1980, fewer than 1,000 pairs of great egrets and 500 pairs of snowy egrets have nested in mainland colonies of Everglades in most years.

- The endangered wood stork has declined from 2,370 nesting pairs within the park in the 1950s, to 1,930 in the 1960s, to 375 in the 1980s. In the last two years, the colony experienced nesting failure.

- In 1988 we learned from National Audubon researchers that the roseate spoonbill population has crashed by over 50% since the last census in 1980.

- The Everglades panther is near extinction with perhaps only five or six left within the park, and maybe only 30 in all of south Florida.

- Water management practices last year flooded out alligator nests and reduced nesting by 50%.

- A massive seagrass die-off in Florida has affected 66,000 acres, of which 12,000-15,000 already have died.

- Fishing success is in a downward spiral relative to fishing effort. Freshwater fish have been found to have dangerous levels of mercury contamination.

The natural ecosystems of Everglades National Park have been severely impacted by past and present water management practices. Water quality, quantity, timing, and distribution are critical to the survival of the park and its unique flora and fauna.

Water coming from the Everglades Agricultural Area and coursing through the canals to Loxahatchee National Wildlife Refuge and Everglades National Park is laden with excessive levels of phosphates and nitrates. Experiments have shown that these nutrients forever change the character of the sawgrass ecosystem. In Water Conservation Area 1, nutrient-rich water has converted over 20,000 acres to cattails. As we sit here today, five to six acres are being similarly converted—and tomorrow, five to six acres more. And next week. . . .

Everglades National Park is a gift we, as a people, gave ourselves. It is to be used lightly and maintained in trust for our children. A healthy Everglades is of inestimable value for Florida. Reflect upon the economic benefits of tourism and recreation. The National Park will host more than one million visitors this year.

A recent survey profiled the visitor to Everglades National Park. Sixty-five percent of visitors were in family groups. Fifty-four percent were on their first visit to the park. Floridians composed 24% of the visitation. Forty-five percent of foreign visitors came from Germany. The average *visitor group* expenditure inside the park for the day was \$35; *per capita* was \$15. The average *visitor group* expenditure outside the park for the day was \$88; *per capita* was \$38. The positive impact upon Florida's economy is obvious.

Just as significant as tourism benefits are the economic benefits that the commercial and recreational seafood industries accrue from the park. The mangrove estuaries and Florida Bay are major nurseries for several species highly prized for seafood.

- Lobster is a \$13-million fishery.

- Stone crab is an \$8-million fishery.

- The pink shrimp fishery is worth \$40 million.

- A sport fishing industry within the park is valued at \$9 million per year.

The values of the park—as a source of recharge for the Biscayne Aquifer, a source of a sustained-yield commercial fishery, a source of recreational fishing, and a "priceless piece of original Florida"—are all at risk.

This commission has been charged to develop recommendations for the protection and restoration of Florida's environment into the next century. Toward that end, let me offer you a few thoughts and recommendations.

1. We must undertake increasingly effective strategic management of our natural resources through more careful integration of goals and objectives, the successful meshing of often-contradictory programs, and the clear visualization of what the one common mission must be. Governor Martinez made that charge clear in Executive Order 88-526, where he declared that "the environment and natural resources are the basis of Florida's quality of life and economic vitality" and that "it shall be the policy of the state to conserve and protect its natural resources and scenic beauty" Within the simplicity of the statement lies all measure of success and accomplishment. Within that same simplicity is a drama of difficulties that can only be overcome by boldness. The threats that face our common resources in the Everglades are too varied and the risks too great to take an uncoordinated, haphazard, and custodial approach to their management. We must not cling to management principles that constitute too narrow an image of our responsibilities—no matter what limitations our charters and mission statements might imply. As we seek to carry out the Executive Order and to fulfill the mandates provided by Congress and the Legislature, we must imagine the appropriate conception of each program, giving it broad, integrated programmatic outlines, reformulating it into more concrete tasks and goals. We must be bold, daring, and visionary in exploiting new opportunities and departing from actions that never did and never will provide solutions. We must manage the resources in the *public* interest of today and form the values and chart the course of public policy tomorrow.

Protection of the Everglades requires common vision, integration of effort, decision making, and risk taking. It is not a task that can wait for the future to provide an orderly process. The future is now. The process of protection is not fully charted and never will be; yet we can't wait and must acknowledge the risk and undertake bold actions with what we already know.

2. We must continue and accelerate the acquisition of land to provide the optimum measure of protection for those natural resources in danger. Within the next decade the *final* opportunities will be realized or lost depending on our vision and resolve. Costs must be measured against the yardstick of the long-term future. The strategy must be realized by perceptive, quick-witted, and daring tactical purchases that might be viewed by the less-informed as, perhaps, sporadic and even arbitrary. The objective is to purchase key segments of land that form the "heart" of a particular resource protection issue. This proactive approach could even encumber the subsequent purchase of large tracts by potential buyers who envision land uses that might be destructive. This may be politically unfeasible, at times necessitating successful partnerships with land trusts and conservation organizations. The last chances for the southern Everglades are still before us. Governor Martinez exercised the vision and foresight to set in motion the authorization to add the East Everglades to Everglades National Park and to undertake the restoration of the Northeast Shark River Slough. Still before us are the lands within the C-111 basin, and those lands which stretch from Highway 1 across the Card Sound Road to

southern Biscayne Bay. This area holds the potential for restoring and enhancing one of the last great wetland-estuarine areas left, binding it in spirit, purpose, or operation to Everglades National Park, Biscayne National Park, and the Crocodile Lakes National Wildlife Refuge.

3. We must place at equal priority the mitigation and restoration of habitats. The nation learned much when it undertook the restoration of the Blue Ridge Mountains of the east. These mountains had been logged to near-destruction by the 1930s and 1940s. Today, wonderful wild vignettes of natural and cultural history have been restored by second- and third-growth forest lands. National forests and parks now grace these restored areas and are the focus of the most intense recreational use in the United States, founding a new economy and vitality. Shenandoah National Park, Great Smoky Mountains National Park, and the Blue Ridge Parkway are all successful restoration projects of decades past. Their success paves the way for a bright future and underscores the successes possible when opportunity, vision, and risk-taking become the agenda for providing a future for generations to come. We must do more to actively restore lands to past biological productivity. We must be imaginative in mitigating losses that are a by-product of a growing society and assure that development and growth pays its way in restoring wetlands and protecting them.

4. We must curb the headlong and unrestrained growth that is destroying those special qualities of south Florida we cherish. It is unrealistic to assume growth can be

stopped. But it can be managed consistent with a clear set of goals that seek to preserve wildlife habitat, water systems, and open areas for recreation as the fundamental cornerstone in the foundation of the quality of life in south Florida. We have to cease the invasion of the remaining Everglades by homes, agriculture, and industry. **What we have left is more precious than what could be gained by their destruction.** The comprehensive land management planning process must be further refined. The reality that, one day, a demarcation line must be drawn, past which no further intrusion is allowed, will require political courage by our leaders. That day is upon us now.

5. It is impossible to separate the land of south Florida—and the people who occupy that land—from water . . . water—one leg of the triad that sustains life for us and those other occupants of the land. I think that all our actions in the Everglades must somehow have their philosophic and practical origins within the water system that originates in the Kissimmee, flows to Okeechobee, and then is canaled, leveed, pumped, and diked to its final destination in the Atlantic or Gulf. As we grow, as we mitigate and restore, as we acquire lands, as we manage growth, it is imperative we acknowledge that water is really the controller of it all. That water is the key to the survival of the Everglades; that water and the land it covers in its annual cycles *is* the habitat; that water defines the Everglades and the successful lives of the plants, animals, and humans that occupy it. **How can we treat this basic and most fundamental necessity in**

such a casual manner? Why do we treat it as a commodity so cheap and valueless that is traded for less-valued things? Why is it so hard to treasure this water for what it is—the basis of life? Without question, the Everglades will cease to exist without the proper amounts of water, timed to recreate natural cycles, and distributed in natural sheet flow. Without question, water loaded with pesticides, phosphates, nitrates, and other residue from agricultural and urban areas is killing the Everglades and substituting a foreign ecosystem. Shortsightedness can only be combatted by dramatic and bold action resolved to correct the problem.

Agriculture and urban entities must clean their water before it is released into the aquifer. The growing threat before us will be storm water drainage, septic proliferation, and groundwater pollution by hazardous toxic waste. We must deal with these issues *now*—while we still can.

The preservation of the Everglades depends upon water quantity and quality. The two are inextricably intertwined. Until now, the debate was often centered around the agricultural industry; the future debate will rage around urbanization. The demand for new well fields, saltwater intrusion issues, etc., are all precursors of a greater problem. Perhaps it may be the marketplace or even public policy makers who will look at the cost-benefit ratios of water needs between urbanization and agriculture. A recent Miami *Herald* article stated that "to offset drought, the water management district sent 235,000 acre-feet of water through Miami Canal to protect the

Biscayne Aquifer—about 76 billion gallons, enough for every person in Dade, Broward, and Palm Beach counties to fill a bath tub four times a day. Yet a 1984 U.S.G.S. study estimated that agriculture uses three times that quantity for irrigation."

6. Water conservation programs must be more quickly and effectively instituted. We must undertake massive public education programs, landscaping practices that are conducive to low water use, building construction standards, appliance features, and recycling programs. This must be a coordinated program linking county, city, state, and federal governments, as well as educational institutions and civic organizations. Those programs now underway must be expanded and more players added to the field.

7. Environmental education in our public schools and state institutions must be perceived as the method through which we effect change and assure a steady constituency for that change. The issues before us today will be with our successors forever and the continuing process of assuring that we can meet challenges in the future will rest on how we educate our young people and those new arrivals to the area. Everglades National Park manages an environmental education program that seeks to solve long-term resource protection issues through the education of those youth who will inherit what we leave them and will face the crises yet to come. We manage two overnight camps where in 1987 we offered 173 day trips involving over 102 schools for 8,149 youngsters; 62 overnight camps involving 50 schools for 4,786 youngsters; two camp workshops for over 100 schools and 229 teachers. In to-

tal, our environmental education staff ministered to over 14,820 students in 1986-87. Our effort is but a drop in the bucket of actual need. The state must better encourage school districts to develop an environmental education curriculum that meets required state education criteria.

This commission is seeking to better understand the environmental problems facing this state and to undertake charting a course of action for the future. Education is one key tool—perhaps the most important of all. We are responsible for our world—or, at least, that small space we occupy. Responsibility requires stewardship. **A sense of stewardship is not an inborn emotion—it is taught.** One role we must undertake is to preserve our resources through creating and sustaining public value systems. Values and resources are indissolubly linked. Simply put, value systems determine acts, acts determine consequences, and consequences determine the kind of world we live in. In the broadest sense, environmental education is society's principal instrument to bridge the chasm between destructive practice and solutions. We realize that times are accelerating. Yesterday's Florida is hard to find. We must teach an understanding that as we are the future of the past, we will soon be the past of yet another future.

The immediacy of it all is brought home daily when we learn of thousands of new arrivals to Florida who move to the state seeking a future. We learn of immigrants and refugees who leave behind a future already squandered to begin anew. They arrive with little knowledge and understanding—and

yet they will set the course for this state and the future of the Everglades. The media can play a tremendous and positive role. News and informative educational features should be continually updated and resurrected. We are all aware of great news feature articles done in the past on the Everglades issues. Those features need to be re-run repeatedly. The continual population turnover in south Florida necessitates repetition in order to educate new citizens.

8. Basic resource data obtained through increased science and research are needed. There is already a tremendous body of knowledge and data that exists at a variety of institutions. However, the more we learn the more we find we do not know. What I see as a problem is the lack of coordination and integration of this data into a solid and cohesive body of science that provides the foundation for effective action. Literally, dozens of institutions are involved in science in the Everglades system. What we need is a different type of Everglades Coalition—a coalition that seeks as its goal the coordination and consolidation of research and information into a single body of knowledge easily used by the variety of agencies that need it. Perhaps the Florida university system could fulfill the role. One of the greatest and most complex ecosystems on Earth exists here in Florida. What an opportunity for the state educational system to undertake the coordination of research, of data collection—to serve as a clearinghouse for this greatest of outdoor laboratories. Indeed, it is a laboratory where we can learn from past mistakes, make adjustments in present management schemes, and deal

with urbanization, agricultural, and wildlands interests.

9. Immediate problems beyond just hydrological or urbanization issues are now facing us. The invasion of exotic trees and other vegetation as a result of disruptive hydrological practices and urbanization landscaping presents the largest threat. The major exotics that we are all familiar with—*Melaleuca* (paper bark tree), *Casuarina* (Australian pine), and *Shinus* (Brazilian pepper)—are threatening to overwhelm the natural ecosystem we are trying to protect. The proliferation of these exotics far outstrips our meager efforts to control them. Not only more money has to be dedicated to the problem, but more science and risk taking. Currently, it appears that the best solution is the introduction of insects that offer natural controls. We must accelerate the scientific evaluation of insect control and, perhaps, not wait for the final conclusions that may be long in coming.

The fisheries in the Everglades and the estuarine areas Everglades water enters are showing signs of depletion. In Everglades National Park, we are finding that catch numbers are steadily decreasing and fishing effort increasing. Before we are presented with the crisis we know is coming, I believe we need to evaluate and undertake reduction of limits and sizes. A high-quality fishery is totally dependent upon how we manage it and how we provide for recruitment. We cannot continue to look at our fisheries as an unlimited resource. The increase in boating recreation and the use of jet skis, along with increasing safety considerations brought on by recreational use, must be dealt with.

People and manatees are being cut up and killed. Seagrass beds are being destroyed. Areas are being overfished. Everglades National Park has taken one important step in prohibiting the use of jet skis in the park. We found significant disruption and derogation of the values and purposes for which the park was authorized and established and took the necessary regulatory step. We are now involved in a major analysis of boat-manatee conflicts in an attempt to try to better understand the problem so we can take the appropriate action to better preserve and perpetuate that endangered species. I am incredulous that we allow the use of boats and other watercraft without licensing, competency testing, and age limitations. All of you, I am sure, have had some type of experience on our waterways that reinforces the need to tackle this issue head on.

Solid waste disposal problems threaten the Everglades and the Florida Keys. How we handle solid waste disposal holds inherent problems for the region. If we burn it, we perhaps will be degrading a Class I air quality airshed over Everglades National Park. If we bury it, what do we do to that valuable aquifer that lies a scant few feet beneath the surface? If we inject it into deep wells, are we eliminating a future water source? Both short- and long-term solutions must now be implemented. Short-term solutions will involve the development and support of recycling programs, container return incentives, use of biodegradable plastics, and hazardous-waste facilities. The State, through law, can actually create the industry to handle the problem. The economic incentive springs forth from regulation.

The difficulty of managing the Everglades as a whole is a task to challenge this State and the nation. The challenge of protecting and managing Everglades National Park within the broader system will only be possible through protection of the greater Everglades. The National Park is not ecologically integral in any respect. It does not encompass entire habitats for its animals, nor whole watersheds—to say nothing of the airshed that lies above the park. Even the very symbol of the Everglades—the long-legged wading bird—does not have sufficient water and land within the park to survive.

Professor Joseph L. Sax of Berkeley, California, a frequent writer on the plight of parks, says it better than I. "From the perspective of preserving biological and genetic integrity, by which contemporary environmental opinion measures success, the parks (for all their wonders) are seriously deficient. If our parklands are to provide, in any degree, what we are now asking of them, far-reaching changes will have to be made. A great deal of land, both public and private, the use of which affects the parks and their resources, is going to have to be managed sensitively. Traditional boundaries, between park and national forest, or between park and private land, must become less important, and 'resource boundaries' must loom larger." So far, the challenge of moving to resource-based, natural-system management from the traditional enclave management system has not been met. It's not difficult to trace the reasons for reluctance. Many people, agencies, and interest groups with competing or contradicting missions have a lot invested

in traditional boundary lines. Protecting their piece of the turf is more important than protecting the whole of which their turf is part. Connections between all the turf must be better understood and administered for the whole—or each of us will, in the end, lose that small kingdom we administer.

In conclusion, I have made more than an appeal for Everglades National Park today. I have tried to link the future of this great park to the larger Everglades region. I have deliberately avoided dealing exclusively with problems and issues that affect just the park. In fact, I have dealt with a broader spectrum of analysis that truly underscores the profound connection that this national park has with south Florida and the greater Everglades. So goes the future of the greater Everglades and south Florida, so too goes the future of Everglades National Park. The two are unalterably linked.

However, one major difference exists. It is the State, the South Florida Water Management District, U.S. Army Corps of Engineers, Dade County, and agricultural and urban entities that, in fact, control the destiny of this park. The park can claim and even legally assert its rights to protection and perpetuation. But it is an indisputable fact that the park is at the downstream end of the plumbing system and is the "edge" to which the cities can now grow.

Everglades National Park is a special place, part of a special, greater system. Only through protection of the greater system can Everglades National Park be assured its rightful place in the future. Bill Brown, an employee in

the National Park Service, says it best. "Parks are dedicated lands—lands dedicated to something more than the daily grind of doing to others and being done to. They are neutral, sanctified ground. They are an exercise in civilization, a kind of refuge for people in a world growing less kind to people. It is because these values are embodied in landscapes—in actual physical places—that they have such power. Anyone can go to a park and see how that power works, on one's self and on others. That is why the land base comes first, then the visitors, then—to the extent our energies can stretch—other things."