THE EVERGLADES COALITION

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The Environmental Coalition
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Florida Audubon Society
Florida Defenders of the Environment
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Florida Keys Environmental Fund
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Florida Sierra Club
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National Audubon Society
National Parks and Conservation Association
National Wildlife Federation
Natural Resources Defense Council
Outward Bound
The Pegasus Foundation
Redland Conservancy
Sierra Club
Sierra Club Miami Group
Tropical Audubon Society
Wilderness Society
World Wildlife Fund

TESTIMONY OF SHANNON A. ESTENOZ
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SOUTH FLORIDA/EVERGLADES PROGRAM
BEFORE THE COMMITTEE ON AGRICULTURE, NUTRITION, & FORESTRY
UNITED STATES SENATE
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On behalf of the more than one million US members of the World Wildlife Fund, and on behalf of the 42 environmental, civic and recreational organizations that comprise The Everglades Coalition and which collectively represent nearly 6 million members and supporters, I want to thank the Committee for the opportunity to submit testimony on the impacts of sugar production on the Everglades ecosystem and on the impacts of sugar production on the economics of Everglades restoration. I especially want to thank Chairman Lugar for his dedication to Everglades restoration. In 1995, he was the first Member of Congress to introduce legislation to assess Florida sugar producers a two-cent per pound fee to help finance cleaning up some polluted sugar runoff.

INTRODUCTION

In 1997, the Everglades was identified by the World Wildlife Fund as one of the most biologically significant and critically endangered ecosystems in the world. The history of the Everglades is as ancient as the layers of limestone that form its base, the oldest and deepest of which date to the Jurassic period when the North American and African continents were joined together. The forces that caused the Florida peninsula to emerge from the sea were the massive, global forces of glaciation, sea level fluctuation, plate tectonics, wave action, and climate change. This emergence eventually gave birth to the Everglades some 5,000 years ago.[1]

Over the course of 5 millennia, the Everglades evolved into an entirely unique ecosystem, which resembles a few other systems in the world, but cannot be wholly classified with them. Five thousand years of fire, hurricane, drought and flood formed the Everglades as

it existed 100 years ago, but in the single century since then dredging, drainage, pollution, and water management have reduced the historic Everglades to a shadow of its former self.

Marjory Stoneman Douglas pointed out that "the shores that surround the Everglades were the first on this continent known to white men. The interior was almost the last."[ii] The great irony of the modern Everglades is that the aspects of the system which ensured its isolation from Europeans for so long - its vastness, flatness, abundant water, balmy climate and deep muck soil - are the very attributes that eventually made it vulnerable to manipulation on a massive scale. The technology required to carve up and drain the Everglades was relatively crude and simple once the will to do so developed in people who understood the scale at which the Everglades needed to be tackled. That will and understanding coalesced only in the second half of the 20th century. The construction of the Central & Southern Florida Flood Control Project and other components of the regional drainage system between 1947 and the early 1970s, which occurred in response to appeals from within the state for drainage, transformed the Everglades into its modern state by converting hundreds of square miles of the ecosystem to open land for agriculture and urban development.

THE MODERN EVERGLADES

Today the Everglades is an ecosystem in drastic decline. It has been reduced to half its original size, polluted by agricultural and urban runoff; and deprived of much of its water. This water, which once fueled the ecosystem's ecology, has been diverted to other uses and pumped out to sea for the purpose of flood control.

That the Everglades cannot survive in its current state and rate of decline is a widely accepted fact. That south Florida's economy and quality of life are dependent on a healthy Everglades ecosystem, the region's only source of potable water and one of the engines that drives its climate, is also a widely accepted fact. Government has responded to grim predictions of the region's future by attempting, over the past 15 years, to address the factors responsible for the decline of the Everglades. Ultimately government realized that a massive re-configuration of C&SF Project was necessary to reverse the decline of the Everglades. Eventually, a restoration plan was devised to serve as a blueprint for this re-configuration. That plan is currently being considered for authorization by Congress.

But restoring the Everglades is no small task, particularly given the presence of cities and farms where there were once wetlands, and the abundance of people (5 million) where once there were barely a few thousand. The challenge lies in balancing the needs of a restored ecosystem with the needs of the citizens of south Florida, and doing so in a way that is fair to taxpayers and to the public at large. Unfortunately, there are great economic distortions in south Florida which are rooted in the long history of public subsidy of private interests and which make it nearly impossible to fairly distribute the costs and benefits of a restored Everglades.

THE EVERGLADES AGRICULTURAL AREA AND ITS IMPACT ON THE EVERGLADES

The location of the Everglades Agricultural Area (EAA) relative to Lake Okeechobee and the central Everglades, the ecological function it historically performed, and its current role in Everglades hydrology make it a critical piece of the Everglades restoration puzzle. The EAA occupies what was once a soggy pond apple forest that opened into a vast and impenetrable sawgrass prairie. The primary ecological function of this area was the dynamic *storage of water* that *flowed* under and across it into the central Everglades. The depth of this water fluctuated with the flood/drought cycle between six inches and 2 feet above the muck surface. When the area was drained, at public expense, to make way for agriculture, the Everglades lost this enormous storage "reservoir", the central storage area in the Everglades that began the slow, wide shallow flow of water south.

Ironically, once it was transformed into the EAA, the former sawgrass plain came to serve the exact opposite role in the ecosystem. Not only could the area no longer store water for delivery to the central Everglades, but its crops, mostly sugarcane, actually required massive *drainage*. Today, water levels are almost always drawn down well *below* the ground surface to protect the sugar root zone from inundation. What happened to the water that was historically "stored" in the EAA? It is transported to other parts of the system, or flushed out into the coastal estuaries and the ocean, by the C&SF Project. To comprehend the scale at which this transferal happens and the ecological destruction that ensues from it, one need only understand the relationship of sugar production to rainfall in south Florida.

According to data compiled by the USDA, there in fact appears to be virtually *no* relationship between rainfall in the EAA and tons per acre sugar yield over the past two decades. The data shows that sugarcane yield has remained steady or increased in the Everglades Agricultural Area, despite comparatively dramatic fluctuations in rainfall and drought conditions in the region across the same period. In other words, even in years when it should have been more difficult to grow sugar in south Florida, EAA yields show that production continued unfettered by the climate.

The explanation for this remarkable incongruity is actually very simple. The EAA is permitted to transfer climate related adversity that it would otherwise face to Lake Okeechobee, the central Everglades and coastal estuaries. This adversity is shouldered by the species who depend on these systems and by the citizens of south Florida who depend on them for livelihood and recreation. It is during periods of high rainfall that the enormity of the EAA's impact on the region becomes most dramatically evident. Even during periods of record rainfall, like the El Nino event of 1998, sugar producers in the EAA are permitted to drain their lands into the Everglades Protection Area and the coastal estuaries even when doing so causes ecologically devastating high water levels in the central Everglades and Everglades National Park, and causes mass destruction in the estuaries. Thousands of tree islands in the central Everglades have been killed or are on the verge of destruction due to excessive flooding. This flooding is exacerbated by the

use of the central Everglades as a reservoir for urban water supply. Endangered species like the wood stork, snail kite and Cape Sable Seaside sparrow are unable to forage and nest in flooded habitat.

Lake Okeechobee is operated by the US Army Corps of Engineers as a storage reservoir to hold back water that would have historically flowed underneath and across the 700,000 acres of the EAA. When high water levels become lethal for the Lake's ecology, water managers try to alleviate the pressure by releasing it east and west to the coastal estuaries. Unfortunately, the Lake water is often so polluted by the time it is released, that plumes of nutrient laden fresh water stretch for miles into the fragile estuarine systems on either coast causing massive fish kills and other ecological damage. These "pulse" or "regulatory" releases of freshwater, as they are locally known, also wreak havoc on the delicate salinity balances in the coastal estuaries. Finally, Lake Okeechobee itself, which suffers from a myriad of pollution and water management problems in addition to those caused directly by the EAA is very near total ecological collapse.

Altered hydrology and transferred flooding are not the only impacts the EAA has had on the Everglades. Sugar production is the direct cause of severe water quality degradation in the central Everglades and contributes to the water quality problems in Lake Okeechobee. The Everglades is very specifically a "low phosphorus" system, which is one of the characteristics that defines its ecology. Sugar growers are therefore required to intensively apply fertilizers to their fields, which they subsequently drain off and dump into the publicly owned Everglades. Normal levels of phosphorus in the Everglades are ten parts per billion or less. Phosphorus runoff from sugar production is in the *hundreds* of parts per billion. Such levels might not sound significant on paper, but in practice, they have huge and deleterious consequences for the Everglades. Not only do high phosphorus levels cause vegetative changes in the marsh – cattails take over where once only native grasses would grow – but phosphorus also affects the microscopic algae (or periphyton) that form the base of the Everglades food chain. These micro-organisms sustain the smallest creatures in the Everglades – its mosquito fish, fresh water shrimp,

etc. – creatures which provide forage for better known Everglades fauna like wading birds. Without adequate periphyton, prey fish decline and with them larger Everglades birds.

Finally, the cultivation of the EAA has resulted in the dramatic loss of soil, which is locally known as "subsidence." Subsidence of muck soils occurs when they are exposed to the atmosphere, allowed to oxidize and in effect "disappear", which occurs when the soils are cultivated. The historic Everglades contained soil systems that stored water, removed nutrients, and comprised the largest peat deposit in the world. Everglades soils in the EAA have been drastically reduced in scale and particularly in function. There are areas of the EAA which have experienced in excess of 12 feet of soil subsidence. Much of what remains has been rendered ineffectual from the standpoint of Everglades hydrology and water quality management.

WHAT WILL IT TAKE TO RESTORE THE EVERGLADES?

In 1994 the US Army Corps of Engineers determined that the only way to reverse the decline of the Everglades was to restore the quantity, quality, timing and distribution of water in the system. We must stop flushing water into the estuaries and the ocean. The water must be cleaned and then released in quantity and distribution patterns that mimic, to the extent they can, those of the historic Everglades. To accomplish this, we must first have adequate places to store water that would otherwise be flushed to the ocean. There are two ways of storing water in south Florida: above the ground and under the ground.

If we store water above the ground, the public must purchase land upon which storage reservoirs and/or restored marshes may be constructed. In order to store water underground, we must install hundreds of "Aquifer Storage and Recovery" wells (ASR) into which wet season water will be pumped, stored and then recovered and cleaned for distribution in the dry season.

The Comprehensive Everglades Restoration Plan (CERP), which was developed between 1996 and 1999, is the "roadmap" for building storage back into the system, redistributing

water, and restoring the Everglades. The plan calls for the combined use of surface and ASR storage, including 60,000 acres of surface storage on the Talisman lands located in the EAA. The Everglades Coalition has argued for years, that it is more ecologically beneficial to store water throughout the system above the ground than it is to store water deep below it in ASR wells. This position is based on the fact that water was stored above and immediately below the muck surface under historic conditions, and served multiple functions including providing habitat, pollution filtration, and contributing to climate conditions, that would not be served by water stored in ASR wells. With regard to water storage in the EAA, the Coalition in 1997 adopted the position of the National Audubon Society that government should seek to bring into public ownership a minimum of 150,000 acres, as sugar lands come out of production for whatever reason, to dedicate to water storage between Lake Okeechobee and the central Everglades.[iii]

As a roadmap to restoration, the CERP is a flexible plan that can change as opportunities for doing things "better and smarter" present themselves over the course of the 30 year plan implementation process. The plan refers to this flexibility as "adaptive management". The Coalition will continue to advocate that the Corps of Engineers explore and take advantage of opportunities throughout the system, and in particular in the EAA, to maximize the extent to which surface storage is utilized over ASR storage. This means the Coalition will continue to urge the government to buy land in the EAA, where water storage is so important, and dedicate that land to water storage.

THE PUBLIC PAYS A HUGE PRICE FOR SUGAR CANE TO BE GROWN IN SOUTH FLORIDA

Profitable, large-scale sugar production in south Florida relies on massive public subsidy, including a federally financed flood control system (the C&SF Project) and the federal sugar price support program.

The federal flood control system, which includes the massive 35-40 foot high Herbert Hoover dike around the south rim of Lake Okeechobee, shunts large quantities of water from the Lake and the EAA to the Atlantic Ocean and coastal estuaries. Without this vast

system of canals, levees, and flood control gates, sugarcane could not grow in much of South Florida. Indeed, sugarcane root systems are highly intolerant of high water levels. Without a federally funded system to rapidly dry down floodwater, sugar cane production could not have increased in South Florida to occupy the approximately 500,000 acres it occupies today.

In addition to subsidizing flood protection and water supply for sugar production in the EAA, the public is being asked to pay over $800 million in research, construction, operations, maintenance and other costs associated with cleaning up phosphorus laden runoff from the EAA. By contrast, sugar producers will pay just over $230 million or approximately 28% of the cost of cleaning their own pollution. The clean up effort and the corresponding producers' contribution to it came only as a result of a consent decree settling federal litigation against the state of Florida for failing to enforce water quality standards, and subsequent state legislation establishing a process for determining and implementing new water quality standards for phosphorus.

THE SUGAR PROGRAM DOES NOT WORK FOR THE EVERGLADES

The federal sugar price support program inflates profits in the EAA, distorts the economy of growing sugar making the rational distribution of benefits and costs of Everglades restoration impossible, and provides incentive for overproduction which contribute to the destruction of one of this nation's most valuable natural resources. From the perspective of the Everglades and south Florida, the program should be phased out when Congress considers reauthorization of the Farm Bill.

Phasing out the price support program will drastically alter the economics of growing sugar in south Florida. Marginal lands that are only profitable to farm because of price supports will likely come out of production, thus reducing the pollution loads into, and water management conflicts with, the Everglades. So long as sugar growers are guaranteed a large profit per pound by having the U.S. price of sugar set at close to twice the world price, there will continue to be artificial incentives to expand sugar cane growing in the Everglades. Indeed the program has resulted in Florida becoming the

origin of nearly a quarter of the sugar produced in the United States. The federal sugar price support program is also helping to destroy the American Everglades, at a time when taxpayers are faced with paying billions of dollars to bring the ecosystem back to life. Phasing out the federal sugar program is consistent with the $8 billion CERP which is currently being considered by Congress. The sugar program is not compatible with the restoration effort because it distorts the economy of growing sugar in the EAA by artificially inflating land values, and creating the public impression that growing sugar on these lands is of greater "value" than using if for water storage, which without the program, simply may not be true. Economic distortion inhibits our ability to make sound decisions about how best engage in the adaptive management process outlined in the CERP to benefit the Everglades and the people of south Florida.

From an ecological perspective, when it was part of the Everglades, the EAA stored billions of gallons of water and provided 700,000 acres of wildlife habitat. It was a central piece of the River of Grass. Phasing out the sugar price support program won't take sugar, or agriculture for that matter, out of the EAA; the other public subsidies of water supply and flood control are too valuable and enabling on their own. Besides, we may discover that growing sugar is the highest and best use of some percentage of the land in the EAA. The bottom line is that we simply cannot determine the highest and best use of land in the EAA while the price support program distorts the economics of growing sugar there. One thing is certain: phasing out the sugar program will remove a critical layer of subsidy that, while it didn't create the EAA, has certainly come to define its size and maximize its impact on the Everglades.

BUY LAND, NOT SUGAR

Unless or until the sugar program is phased out, the Congress and the administration will periodically face the decision of whether to buy sugar or face loan defaults. Decisions to buy sugar simply encourage the growth of still more sugar and so on in a continuous cycle of misplaced incentive and cost to consumers. As an alternative to buying sugar, the government could choose to purchase land in the EAA taking it permanently out of sugar production, thereby ending the cycle of overproduction and buy back that is so

destructive to the Everglades. While not every landowner will want to sell, some undoubtedly will. A vigorous willing seller program will save considerable money in sugar buy backs and storage costs, and will help the Everglades.

I want again to thank Chairman Lugar and the Committee for the opportunity to present the view of the Everglades Coalition on this important issue. I welcome any questions the Committee may have on the Coalition's position.

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[i] Lodge, Thomas E. 1994 *The Everglades Handbook*. St. Lucie Press, Delray Beach, Florida.
[ii] Douglas, Marjory Stoneman. *The Everglades: River of Grass* (revised edition). Pineapple Press, Sarasota, Florida.
[iii] The Everglades Coalition. 1997 *Strategies for Success*, 13th Annual Everglades Coalition Conference, Key Largo, Florida