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1998

FLORIDA SUGAR FARMERS
Proud Partners in the Everglades Restoration



FLORIDA INTERNATIONAL UNIVERSITY

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FLORIDA'S SUGAR INDUSTRY

Sugar cane is Florida's most environmentally friendly crop. Florida's sugar farmers produce more than 25% of America's sugar supply on about 450,000 acres in the Everglades Agricultural Area near the southern and eastern shores of Lake Okeechobee in Palm Beach, Hendry, Glades and Martin counties.

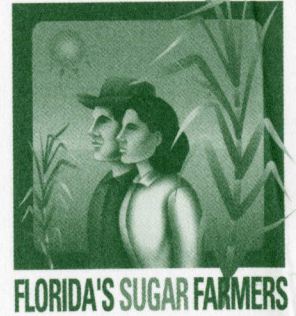
The sugar industry has a \$2 billion impact on the state's economy and creates more than 40,000 jobs statewide. Florida sugar farmers produce about 1.9 million tons of raw sugar annually.

Since the 1920s sugar cane has been grown in the rich muck soil and the sand lands of South Central Florida by farmers who value the land they work and the environment in which they live. Preserved wetlands and wildlife habitats are interspersed among the cane fields. Sugar farmers' conservation practices make the farm lands an ideal habitat for bald eagles and blue herons, river otters and great egrets, roseate spoonbills and wood storks as well as many other species of wildlife that share our land.



Cover photo: The limpkin, in a natural habitat on sugar land, feeds primarily on apple snails that live only in clean, clear water.

AN ALLIANCE OF FLORIDA SUGAR FARMERS



August 5, 1998



Dear Librarian:

It has been said that a picture is worth a thousand words and so we offer these vivid pictures as an illustration of the environmental commitment of South Florida Italic

The outstanding photographs you will see were taken on the sugar farms in the Everglades Agricultural Area by noted Florida wildlife photographers. These images portray the vibrant reality of our environmental preservation and nurturing of wildlife habitat not often associated with farming in Florida.

The enclosed brochure also discusses the important steps that Florida sugar farmers have taken over the years to make farming friendlier for the environment and describes our integral role in Everglades restoration--including our determination and commitment to be a full partner in these restoration efforts.

We hope that you enjoy learning more about our farming practices and the wildlife that makes its home on our farms. We welcome your comments and invite you to join us in touring our farms and processing facilities during the harvest season.

We look forward to hearing from you.

Sincerely,

Robert E. Coker
U.S. Sugar Corporation
(941) 983-8121
www.ussugar.com

Jorge Dominicus
Florida Crystals
(561) 655-6303
www.floridacrystals.com

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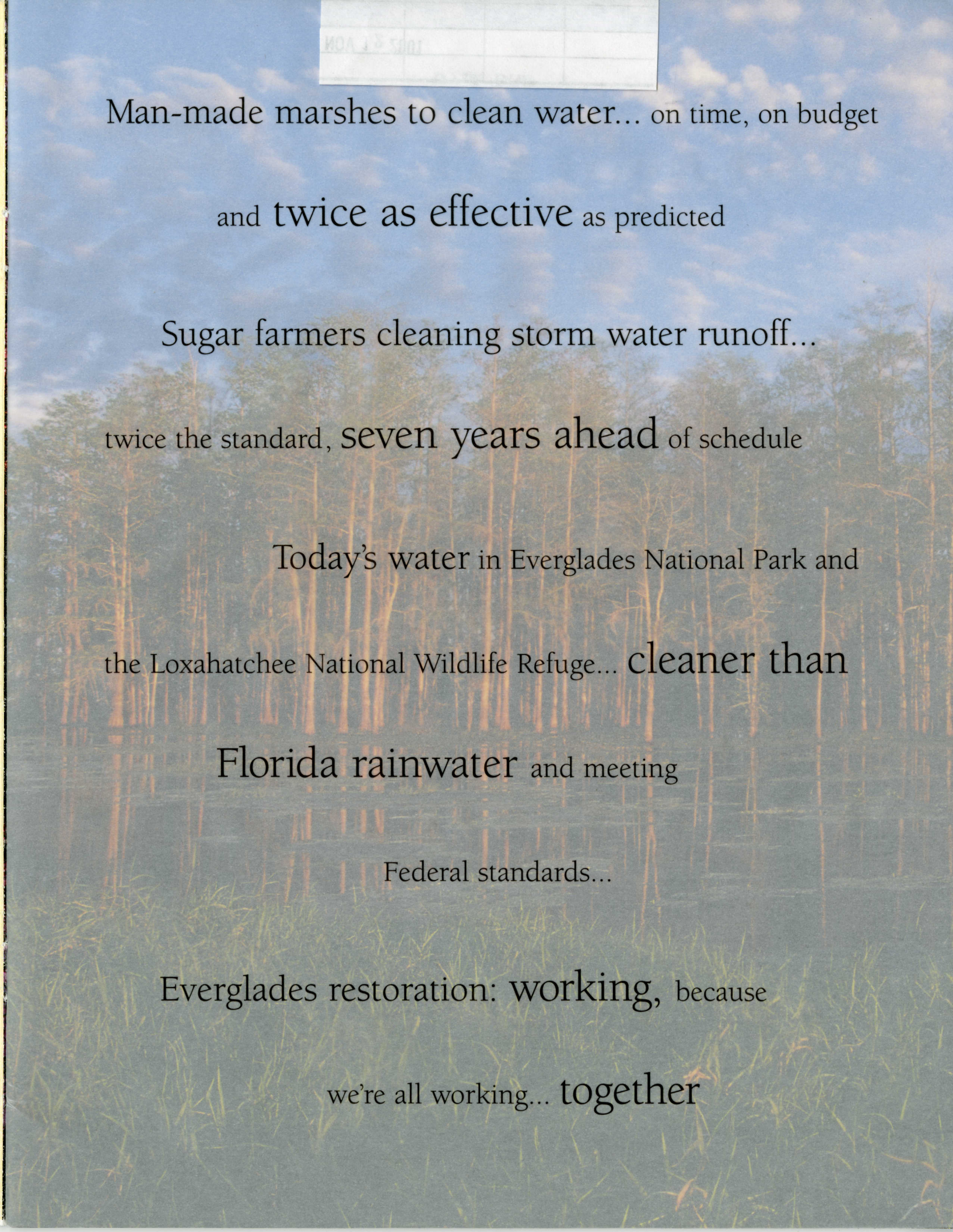
the Loxahatchee National Wildlife Refuge... cleaner than

Florida rainwater and meeting

Federal standards...

Everglades restoration: working, because

we're all working... together



Man-made marshes to clean water... on time, on budget

and twice as effective as predicted

Sugar farmers cleaning storm water runoff...

twice the standard, seven years ahead of schedule

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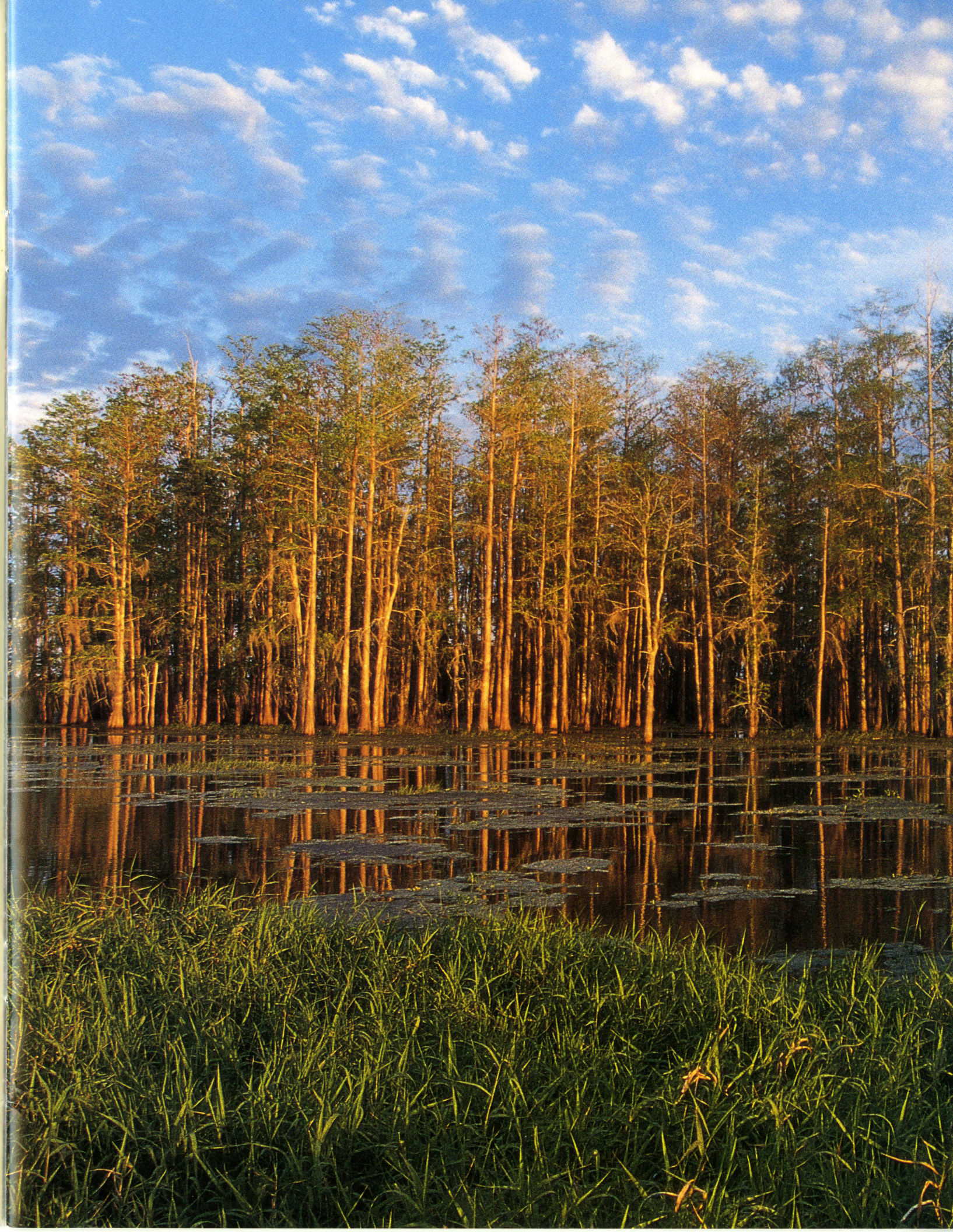


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Cover photo: The limpkin, in a natural habitat
on sugar land, feeds primarily on apple snails that
live only in clean, clear water.



Dramatic change has come to Florida

For centuries, South Florida lay fallow. At the southernmost tip of the North American continent, it was steeped in sun, buffeted by occasional hurricanes, transited only by native canoes and migrating birds. It was home to an amazing array of wildlife, but it was also a sometimes harsh and forbidding wilderness that was not friendly to humans.

During the last 100 years man has tamed the vast wilderness, and dramatic change has come to Florida. Progress in the shape of resorts, railways, highways, theme parks and subdivisions. Settlement started on the coastal ridges overlooking the Atlantic and the Gulf of Mexico. Farmland formed a backbone along the center of the state with crops such as sugar cane thriving in the rich muck soils surrounding Lake Okeechobee. During the winter months, Florida became the fruit and vegetable basket for the eastern half of the continent, producing strawberries, citrus, sugar and vegetables.

Today, tourism, agriculture and international commerce are the pillars of Florida's economy. The state is now home to nearly 14 million people, five million of whom live in South Florida. Urban boundaries continue to push into what was once wetlands, marshes, and the fabled "River of Grass"—the Everglades.

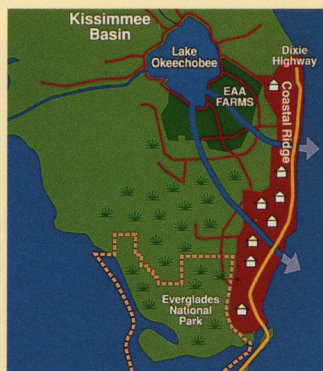
After years of damming, diking and draining wetland marshes to sustain the booming population growth, people began to realize the profound and permanent impacts it was having on the fragile ecosystem. Wading birds began to disappear. Water patterns were altered, and vast portions of Florida's Everglades began to disappear. As the 1980s approached, activists from around the country sounded the alarm about the damage to this national treasure.

A vocal and determined movement began in 1980 to preserve what was left of the Everglades.

Farmland formed a backbone along the center of the state with crops such as sugar cane thriving in the rich muck soils surrounding Lake Okeechobee.



The Everglades 100 Years Ago



The Everglades 1900-1960

A government policy of development for urban, industrial and agricultural use.



The Everglades Today

A policy of restoration & water quality

To understand the Everglades today, we need to start one hundred years ago, when the Everglades was an uninterrupted river of grass covering about four million acres from Lake Okeechobee to the Gulf of Mexico.

Billions of gallons of water fed naturally into what is known today as Everglades National Park. The enormous supply of fresh water, which ebbed and flowed through the seasons, supported wildlife populations of tremendous size and diversity.

South Florida's east coast population totaled only 23,000, most of whom were clustered along the Atlantic Coastal Ridge. Land suitable for housing was scarce due to periodic, systematic flooding and the threat of deadly hurricanes.

During the early 1900s, there were many failed attempts to tame and develop lands that were part of the Everglades ecosystem. But it was not until after the tragic deaths of thousands of South Floridians during the hurricanes of 1926 and 1928 that the Federal Government authorized the U.S. Army Corp of Engineers to create a massive system of canals, levees and dikes which ultimately made the development of South Florida possible.

Historically, water flowed southward from the Kissimmee River Basin, feeding through the Everglades into the Gulf of Mexico. Much of the natural flow was diverted eastward to ensure urban and industrial areas remained dry and to supply their water needs.

The 1994 Everglades Forever Act was passed by the Florida Legislature, supported by the Clinton administration and signed into law by Florida Governor Lawton Chiles. It is a synthesis of federal, state and local government efforts, combined with the stewardship and commitment of urban, industrial, agricultural and environmental leaders.

THE EVERGLADES FOREVER ACT:

- *Imposes on sugar farmers the most stringent water quality standards of any farmers in the country*
- *Sets a water quality standard for farm water runoff at a level twice as clean as rain*
- *Creates 40,000 acres (60 square miles) of man-made filter marshes from former farm lands*
- *Increases water flow to the Everglades by 28%, by recapturing water now being dumped into the Atlantic Ocean*
- *Apportions the \$685 million cost of the Everglades Construction Project to reflect the impact of population growth, development and agriculture on the Everglades*
- *Requires farmers to pay 100% of the cost of cleaning farm water with a special tax of up to \$322 million over the next 20 years*
- *Treats runoff from urban areas, which have significantly higher levels of pollution than farms*
- *Requires farmers to spend additional millions—through implementation of Best Management Practices to reduce phosphorus before water leaves their farms*
- *Sets stringent deadlines for compliance and initiates research to determine the work that will need to be done in future phases of Everglades restoration*

A flock of wood storks and ibis take flight from Florida Crystals' rice fields in the Everglades Agricultural Area.

But the discussions about what to preserve and how to restore the Everglades were difficult. The interests of thousands of Florida residents who in good faith came to the state to benefit from the booming economy and work or retire in the sunshine were beginning to see conflicts develop.

Nationally, efforts to “turn back” the clock were very difficult and often impossible.

However, in the early 1990s, after nearly a decade of battle in the courts and in the media, all of the parties (agriculture, urban interests, government, environmentalists, and native tribes) struggling for direction in how to preserve and



restore the “River of Grass” came together in an historic agreement to launch the most ambitious ecosystem rescue effort ever attempted in the United States.

In 1994, these efforts were institutionalized by the Florida Legislature with passage of the historic Everglades Forever Act. The Act, outlining and funding the first steps in Everglades restoration, was endorsed by the Clinton administration and signed into law by Florida Governor Lawton Chiles. A blueprint for Everglades restoration, it represented a consensus among the federal, state and local governments, combined with the stewardship and commitment of urban, industrial, agricultural and environmental leaders.

The Everglades Forever Act establishes a water quality standard for farm runoff that is twice as clean as rain.



Proud Partners in Everglades Restoration

“U.S. Sugar is now a model facility for environmental compliance.”

— Florida Department of Environmental Protection

Sugar farmers were strong proponents of the Everglades Forever Act (EFA) and became proud partners in the commitment to Everglades restoration established by The Act. We are committed, in principle and in practice, to preserving our natural resources and protecting the ecosystem. Sugar farmers are spending hundreds of millions of dollars on the Everglades restoration project and began an intense program of research that resulted in dramatic changes in the way they farmed.

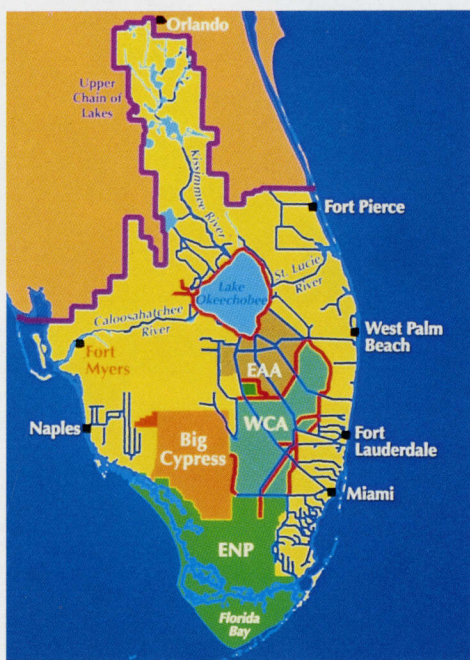
Everglades Restoration is Working

In the few short years since passage of the EFA, remarkable progress has been made in improving water quality and hydro-patterns to the River of Grass. As traditional stewards of the land, Florida sugar farmers have been instrumental in the restoration process.

Our commitment begins at home—in our own fields. Growing natural foods in harmony with the environment, we have developed and implemented a concept of *Sustainable Agriculture*. This makes the best use of our natural resources while maintaining a healthy balance with surrounding ecosystems.

Florida sugar farmers have invested millions of dollars in new soil and water management techniques which clean the water before it enters the Everglades system. Phosphorus in farm water has been reduced by an average of more than 50% over the three year period from 1994-1997, seven years ahead of schedule.

We are paying 100% of the cost of cleaning the water that leaves our farms. Sugar farmers are paying millions of dollars in special Everglades taxes to build six huge filter marshes to clean water headed to the Everglades. The first of the marshes has been successfully constructed, and



The South Florida Water Management District stretches from just west of Orlando to the Florida Keys. The Everglades Agricultural Area (EAA) and state Water Conservation Area (WCA) are shown below Lake Okeechobee. Everglades National Park (ENP) encompasses the southern end of Florida's peninsula.

Right: Egrets dine in freshly disked cane fields. Many species make their homes in the Everglades Agricultural Area, where food and water are abundant.

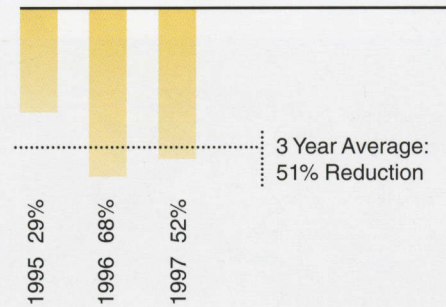
is proving to be twice as effective as anyone anticipated. Water that flows into Everglades National Park meets all federal and state water quality standards and is cleaner than Florida rainwater.

The Florida Legislature, which initiated this massive restoration effort, has maintained diligent oversight of the project. Through its leadership, this initiative is on time and on budget. The federal government has contributed its share of financing.

Everglades restoration is important to all Americans. While much remains to be done, Florida sugar farmers work every day to fulfill our commitment as partners and proponents of Everglades restoration.

Total Sugar Farm Phosphorus Level Reduction 1995-1997

Source: South Florida Water Management District





- Using high-tech lasers to level fields and thus reduce soil erosion and improve water control.
- Modifying pumping practices to prevent soil sediment from being pumped with water as it moves off the farms.
- Promoting vegetation to grow along canal banks to trap soil sediments.
- Minimizing fertilizer application by applying needed nutrients directly onto plant roots.

Sugar farmers have also changed water pumping practices. Releasing smaller amounts of water over a longer period of time prevents soil sediment in the bottom of farm canals from traveling with water being sent to the Everglades. Together these BMPs have dramatically improved the water leaving farm areas.



The black-necked stilt, a wading bird indigenous to fresh water wetlands, finds many choices for dinner in sugar industry's rice fields.

Sustainable Agriculture

Making the best use of our natural resources while maintaining a healthy balance with surrounding ecosystems is what we term *Sustainable Agriculture*. Sugar farmers grow natural food products in harmony with the environment. Because of a sophisticated integrated pest management program begun decades ago, over 80% of our sugar cane is produced without pesticide application.

Barn owls, for example, play a vital role in helping sugar farmers control rats and mice without using pesticides. A barn owl family of two adults and six young can consume over 1,000 rodents during a nesting period. Both Florida Crystals and U.S. Sugar have an active owl box program in place. We provide raised, wooden boxes where small owls can live protected from their predators, while they keep our fields free of rodents and other pests. Together, U.S. Sugar and Florida Crystals have provided a total of 300 owl boxes, which have been welcomed by the local owl population.



The cotesia wasp, bred in U.S. Sugar's laboratory, devours the destructive sugar cane borer. More than 80% of Florida sugar cane is produced without pesticides.

Left: An active owl box program at Florida Crystals and U.S. Sugar encourages barn owls to live in the sugar cane fields. By consuming mice, the owls help sugar farmers control rodents without pesticides.

The only American-made certified organic sugar available in the natural foods industry is grown in Florida.

Crop Rotation

We rotate sugar cane with rice and corn. Crop rotation ensures the long term viability of the soil and restores its fertility, as well as removing weeds and unfriendly pests. And, in the case of rice, the 20,000 acres planted each year provide a rich habitat for many species of water fowl and wading birds.

Organic Farming

Florida Crystals milled the first certified organic sugar ever produced in the United States. It is the only American-made, certified organic sugar available in the natural foods industry and is the highest quality organic



Florida Crystals produces a full line of organically grown sugar and rice products.

Right: An alligator glides through water spangles on a sugar cane farm.



sugar in the world. The company also pioneered growing certified organic rice in Florida. Organic foods are produced without the use of chemical fertilizers, pesticides or herbicides, thus reducing the amount of chemicals introduced into the environment. To be certified “organic,” farm land must be free of synthetic pesticides and fertilizers for at least three years.

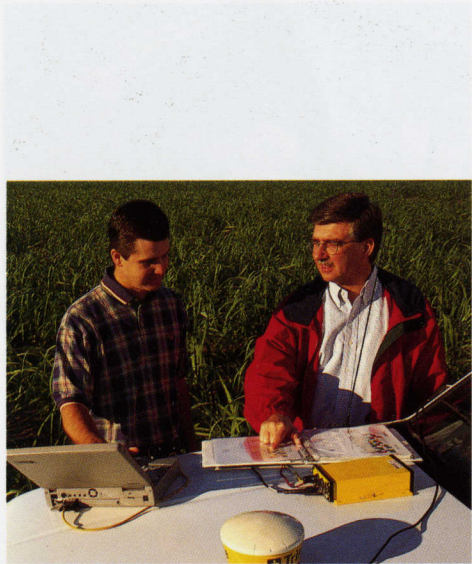
Research

Scientific research has been an integral part of the Florida sugar industry for more than half a century. U.S. Sugar’s research department in Clewiston is one of the oldest and largest privately owned laboratories in the nation.



Sophisticated research yields better crops without pesticides or chemical fertilizers.





Using Global Positioning System technology, sugar farmers can treat small problem plots without impacting larger areas.

Each year, 120,000 new varieties of sugar cane are developed using modern genetic techniques, in an effort to find heartier, more climate tolerant and disease-resistant cane plants.

The research scientists also use cutting-edge Global Positioning System technology to identify problem areas in small plots within cane fields, allowing correction without impacting larger areas.

Integrated pest management for sugar cane, which combats destructive pests and plant disease by using beneficial pests instead of chemicals, was pioneered by the Florida sugar industry. Thousands of microscopic cotesia wasps are bred in the lab, then released in the cane fields to devour the destructive sugar cane borer.

Wildlife Management

Florida's sugar industry takes seriously its commitment to wildlife on our lands and in our waters. Farm lands that include uplands, wetlands, ponds and lake areas have become excellent wildlife habitats. Additionally, about 15% of the land area on U.S. Sugar and Florida Crystals property is left unplanted and provides valuable wildlife havens.

Families of bald eagles, some of which have lived in the same area for more than a decade, are surrounded by 40 acres of land preserved and left undisturbed. Absolutely no hunting is allowed on our property, and we prosecute poachers to the full extent of the law.

The rice fields that rotate with the sugar cane provide protective nesting areas for fulvous whistling ducks, which make their nests in flooded fields when the rice is about 10 weeks old. The flooded acreage provides protection from predators such as raccoons or bobcats and thus make an ideal nesting area for the ducks. So successful is the breeding here that a study of fulvous ducks' nesting habits was recently conducted by Auburn University.



A pond behind Florida cane fields attracts roseate spoonbills, which nest in nearby trees and shrubs.

Right: Eagles raise their young in protected, undisturbed lands set aside by the sugar industry.





A white-tailed doe is one of many deer that makes its home on protected U.S. Sugar property, where no hunting is allowed and violators are prosecuted.



The brilliantly colored purple gallinule, often spotted in Everglades National Park, enjoys the fresh water ponds found on sugar land.

The sugar lands in and around Lake Okeechobee are home to deer, black bear, wild boar and river otters. Even the elusive Florida panther has been seen. Hundreds of species of wading birds live on our lands and in our waterways—from roseate spoonbills, wood storks and great blue herons to giant egrets and white pelicans. Our land is also home to less common varieties of water fowl.

For example, the limpkin is usually found in the Everglades and South Florida wildlife refuges. Its primary food is the apple snail, which lives only in clean, clear water. The American Bittern, a close relative of the heron, camouflages himself in tall marsh grasses to catch his dinner. He lacks the heron's long neck and thus must work harder for his food. The brilliantly marked purple gallinule, left, which elicits tourists' awe in Everglades National Park, also makes its home on sugar property.

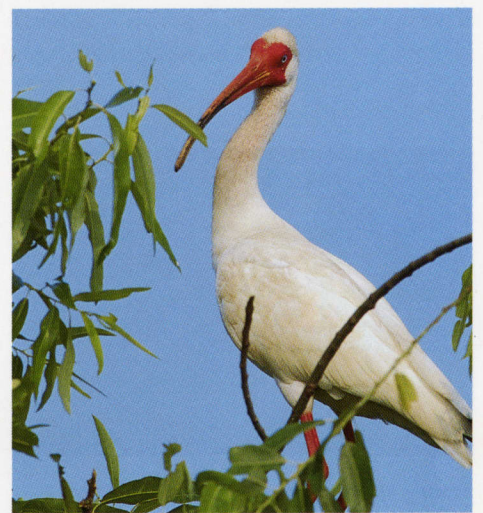


The Florida sugar industry is energy self-sufficient.

Renewable Energy

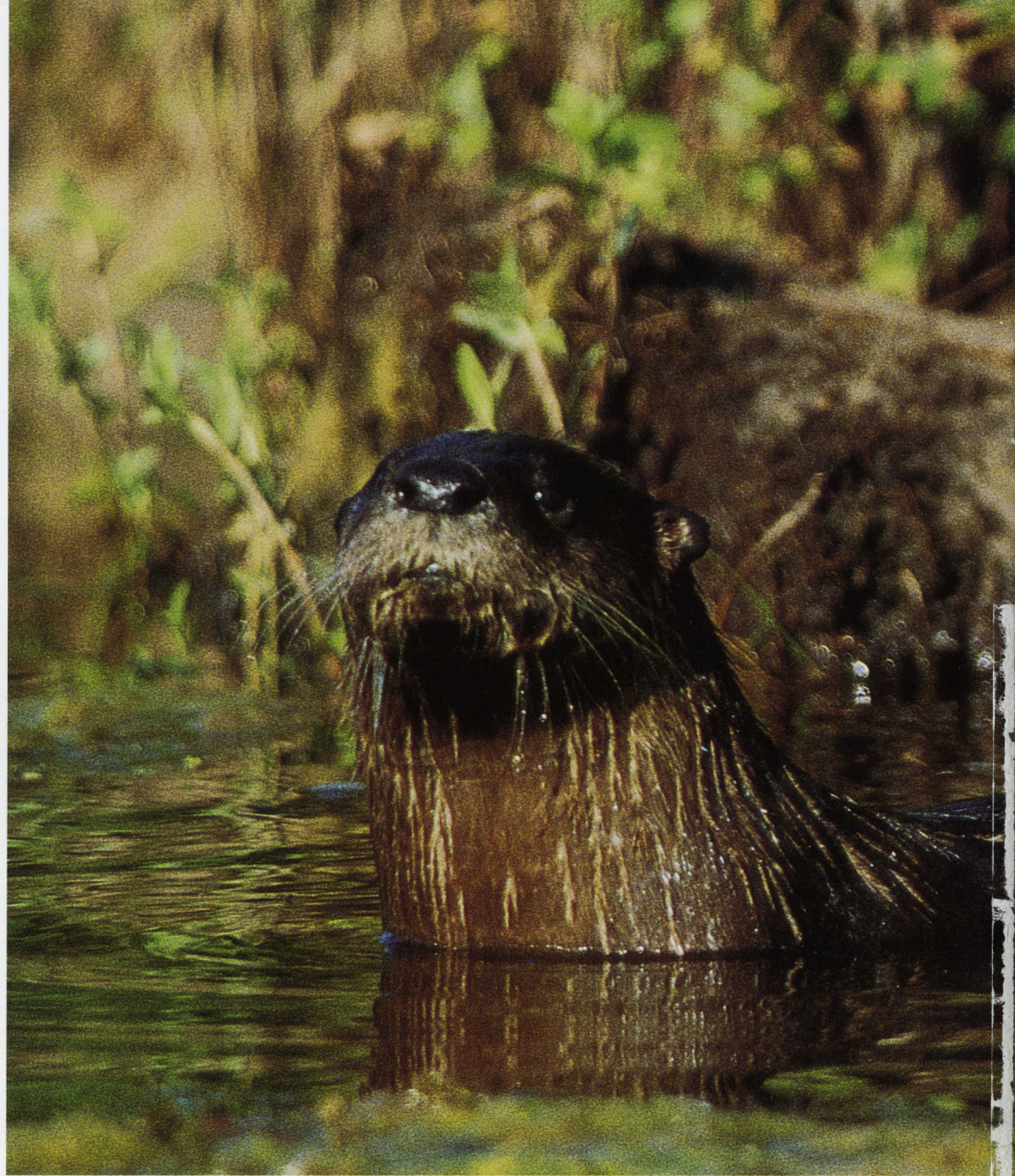
The Florida sugar industry is energy self-sufficient. The sugar mills and refineries produce their own fuel by burning bagasse, the dry, fibrous pulp that remains after the sugar juice is pressed from the cane stalk. Renewable energy is four times as efficient at capturing heat value for fuel as traditional technologies. Florida Crystals and U.S. Sugar produce all of their electrical needs from this renewable resource and sell the excess electricity into the public electric grid.

For example, Florida Crystals' two co-generation plants produce electricity for its mills and more than 70,000 area homes—the equivalent of 1.6 million barrels of oil or 400,000 tons of coal annually. As a result, area electric utilities purchase the mills' excess electric power. Additionally, urban wood waste is used as fuel, disposing of more than 700,000 tons of wood waste and eliminating the need for many acres of landfill area. The pesky melaleuca tree,



The white ibis enjoys the tranquility and plentiful food found on sugar farmers' land.

Special agricultural taxes generate millions of dollars annually for environmental projects.



that threatens to overtake the Everglades, is now also being burned as fuel. Up to 50 tons of melaleuca an hour can be consumed at the plants.

Air Quality

Florida sugar farmers operate one of the state's largest private air monitoring networks. Nineteen stations test ambient air quality to ensure that state and federal standards are not only met, but often exceeded. An air monitoring laboratory in the heart of the sugar cane farming community near Belle Glade, operating in cooperation with area governmental agencies, continually measures and records sulfur dioxide and ozone levels as well as wind direction and velocity. All monitoring is under the direction of the Environmental Protection Agency.

Emissions from the sugar mills' steam-generating boilers are also moni-



Testing ambient air quality throughout the Everglades Agricultural Area ensures state and federal standards are met.



tored. Boilers are equipped with the latest technology—electrostatic precipitators or scrubbers that spray water with such intensity that more than 90% of emission particulates are trapped and never enter the atmosphere. Water vapor or steam is emitted from the stacks, some of which reach heights of 225 feet.

Families of river otters play in the ponds and canals on sugar farmers' property.

Zero Discharge Wastewater

Zero discharge wastewater management programs have been developed and implemented at many of our mills. Water goes to retention ponds and feeder ponds, then back into the mills in a continuous, sealed cycle.

Environmental Protection District

At the request of area sugar farmers, the Florida Legislature created a special taxing district in the late 1980s that encompasses all agricultural

*Florida's sugar farmers
are committed to
Everglades restoration.*



A male and female anhinga keep close to their nest of fledglings in a willow grove next to cane fields.

interests around Lake Okeechobee for the purpose of protecting and enhancing the environment. Municipalities and other non-agricultural property are exempt from the tax.

Agricultural land is taxed up to \$5 an acre a year and generates about \$2.5 million annually. It supports research for environmental projects, including phosphorus reduction, best management practices and water treatment for the water that flows south into the conservation areas. Farming tax money is also used for special grants, such as \$1 million to the South Florida Water Management District to study discharges from Lake Okeechobee.


Preserving and Restoring the Everglades

Florida's natural environment always has been its principal resource. Throughout this century, because of its warm weather and natural beauty, the state has boomed in population growth and has prospered economically. Often, unintentionally, the environment has suffered at the hands of human progress. In recent years, Floridians have become more aware of the importance of balancing the needs of the environment and the demands of the economy.

For South Florida, that means finding a way to maintain a sustainable human habitat, agriculture vital to the entire nation and the Florida Everglades. An important step toward that goal is to preserve what remains of the Everglades, to restore what can be restored, and to create an ecosystem management plan that will sustain it into the future.

Florida's sugar farmers are committed to this mandate for the future. We believe that agriculture must remain a vital part of South Florida's economy and that the environment can be preserved and protected.

That is why we are proud partners in Everglades restoration.



The majority of the wildlife photographs in this brochure were taken on sugar farming land by noted Florida wildlife photographer Maresa Pryor. A native Floridian who lives in Sarasota, Pryor's work has appeared in National Geographic, Time, Audubon calendars, Birder's World, Nature Conservancy and many other national and international publications. Pryor took a special interest in this project, and her dedication is reflected in the quality of the photographs.

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