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## MIAMI-DADE 'FLORIDA YARDS & NEIGHBORHOODS' PROGRAM: A CASE STUDY IN ENVIRONMENTAL EDUCATION

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### INTRODUCTION

Florida Yards & Neighborhoods (FYN) is a statewide environmental education program of the University of Florida Cooperative Extension Service (UFCEs). The primary objective of FYN is to teach targeted stakeholder groups how they can conserve water and reduce nonpoint source pollution associated with stormwater runoff from private yards and public landscapes by implementing the following 'Florida-friendly' landscaping principles: Right Plant, Right Place; Water Efficiently; Fertilize Appropriately; Maximize Mulch; Recycle Yard Waste; Manage Pests & Diseases Responsibly; Reduce Nonpoint Source Pollution; Provide for Wildlife; and Protect the Waterfront. This publication characterizes the Miami-Dade FYN Program as a case study in nonpoint source pollution and water conservation education. It also illuminates the importance of collaborations and partnerships in any successful environmental education endeavor.

### BACKGROUND

The following sections present relevant background information about Florida—and south Florida in particular—and the FYN program. Also presented are the needs and justifications for developing and implementing environmental education programs targeting nonpoint source pollution and water conservation in Florida, and specifically in Miami-Dade County.

#### *Florida*

Florida ranks first in the nation in pesticide and fungicide use, even though it ranks 33<sup>rd</sup> in planted crop acreage. Nearly 1/3 of all pesticides, insecticides, and herbicides used in the state are applied in urban areas. And on a per-acre basis, homeowners use 10 times more pesticides than farmers. Florida also has the highest level of domestic water use in the country, which is due, in part, to the amount of water being applied to our lawns and landscapes. These factors, coupled with rapid urbanization and population growth, cause Florida to be at risk of large-scale natural system degradation, as well as compromises in human health.

#### *South Florida*

South Florida is blessed with many natural treasures, including coral reefs, bays, tree canopies, mangrove shorelines, and white-sand beaches. South Florida also contains national parks within its boundaries that warrant a high level of protection and management. Economically, south Florida depends on tourism, and to some extent, on commercial and recreational fishing and boating. The demographics of south Florida reflect a mix of races, nationalities, and ethnic groups. A significant proportion of south Florida's

residents are Caribbean-born immigrants, many of whom are non-English speakers and who may have come to the area with little education or financial resources—making them a difficult constituency to reach using traditional educational approaches. South Florida also receives a large number of seasonal tourists who also contribute to the nonpoint source pollution of our waterways and water bodies and contribute to the demand on our freshwater resources, but this clientele group is also difficult to educate.

In Miami-Dade County alone, 2.5 million people live in just 25% of the 2,000 square miles that comprise the county. In addition, minority students represent 86% of the public school enrollment in Miami-Dade County. Therefore, the target audiences of any environmental education efforts in Miami-Dade County are both large and complex.

Water quality and quantity issues greatly affect south Florida. For example, flooding problems resulting from increased development and urbanization also result in increased stormwater runoff, which often flows directly into environmentally fragile ecosystems. Near-shore waters also experience degradation as a result of the abundance of boaters and marinas. Hurricanes lead to additional environmental problems by reducing the tree canopy, increasing beach erosion, and promoting flood conditions, to name a few. Finally, limited freshwater availability relative to demand places additional pressures on the ever-growing human population, on agriculture, and on the natural systems that rely on that water.

The question that remains for south Florida policymakers and stakeholders is this: How can we effectively educate our diverse population to change their behaviors to reduce nonpoint source pollution and to conserve our freshwater supplies? Nonpoint source pollution and water conservation education programs have only just begun to target multilingual and multicultural constituencies with programming that would at least be in a language they can understand. In fact, translation of educational materials now represents the status quo in south Florida. However, the problem is not the availability of educational materials, but the effective dissemination of these materials to those constituencies whose behaviors significantly contribute to the water usage and nonpoint source pollution problems. This issue will be addressed in greater detail below.

### ***FYN***

In the early 1990's, FYN precursor programs were initiated independently in three west-coast Florida counties bordering Sarasota Bay and Tampa Bay. At the time, both bays were experiencing severe water quality problems due to uncontrolled nonpoint source pollution. The program in the Sarasota Bay area was initiated by an Urban Horticulture Extension Agent in Sarasota County and a Florida Sea Grant Agent in Manatee County and was called the Florida Yards program. The program in the Tampa Bay area was started by an Urban Horticulture Agent in Hillsborough County and was called the Florida Neighborhoods program. Funding for these programs was practically nonexistent. The respective agents simply took on the new programs as part of their regular duties. Even without funding, however, these programs were highly successful in enlisting homeowners and other stakeholders in the battle to improve 'their' bays.

The successes in Sarasota, Manatee, and Hillsborough counties prompted the UFCES to establish a statewide FYN office, hire a Statewide FYN Coordinator, and begin expanding the FYN Program into other counties. The expansion of FYN into nearly 50 of Florida's 67 counties since 1994 was made possible by funding from the Florida Department of Environmental Protection (FDEP) via 3-year startup grants—using Section 319 stormwater funds from the U.S. Environmental Protection Agency. Once these startup grants end, each county is expected to secure its own funding source(s) to continue its FYN program, with the caveat that counties are not allowed to request additional funds from the FDEP or from Section 319. As a result, sources of continued funding vary from county to county, and include water

management districts, national estuary programs, county and municipal governments, and local partners, including nonprofit organizations. The Miami-Dade FYN Program is now at the end of the startup grant timeline. Miami-Dade County has agreed to fund the program through the 2002-03 fiscal year, but permanent funding remains uncertain.

## **FYN PROGRAMMATIC EFFORTS IN MIAMI-DADE COUNTY**

The Miami-Dade FYN Program is comprised of four distinct but inter-related components. The remainder of this publication will summarize the following four aspects of the program: (1) outreach education; (2) demonstration landscapes; (3) yard certifications; and (4) watershed initiatives.

### *Outreach Education*

#### **Accomplishments**

To date, Miami-Dade FYN has focused its outreach education efforts primarily on targeted clientele groups, such as homeowner associations, garden clubs, and plant societies. Last year, 77 presentations were given to nearly 1,500 people. A four-part training program was also developed and implemented in 2001 for landscape maintenance personnel from the cities of North Miami and North Miami Beach. This year, curricula are being developed to train a group of local landscape architects, as well as 240 landscape maintenance personnel in Miami-Dade County's Parks & Recreation Department. During 2001, a total of 7,993 FYN and related Extension publications were distributed at workshops and meetings, and another 5,201 publications were mailed to clients requesting information. The Miami-Dade FYN website was expanded to 115 pages in 2001, and the site received 5,375 page requests throughout the year.

#### **Impacts**

Because FYN is a program of the UFCES, the educational, social, environmental, and economic impacts of the program on the clientele are required to be documented. The following is a summary of impact data from 2001.

**Knowledge Gain:** A total of 480 of 694 (69%) workshop participants that completed pre- and post-surveys at FYN presentations increased their knowledge of 'Florida-friendly' landscaping practices by an average of 20%.

**Behavior/Practice Change:** From 50 matched sets of more extensive pre- and post-FYN Homeowner Questionnaires, clientele reported an average behavior adoption rate of 28%—or 7.5 new behaviors per person—as a result of FYN programming. The following is a breakdown of these results:

- Site Analysis, Planting, and Landscape Design practices (avg. increase = 27%)
- Stormwater Runoff practices (avg. increase = 21%)
- Irrigation practices (avg. increase = 16%)
- Pest Management practices (avg. increase = 24%)
- Providing for Wildlife practices (avg. increase = 21%)
- Fertilization practices (avg. increase = 23%)
- Mowing, Mulching & Recycling practices (avg. increase = 20%)

**Social, Economic, and Environmental Impacts:** The following is a summary of the social, economic, and environmental impacts for the aforementioned 50 participants:

- 88% reported that FYN practices save them time on yard work
- 76% reported that FYN practices save them money on their water bills
- 68% reported that FYN practices save them money on pesticides

- 66% reported that FYN practices save them money on fertilizers
- 50% reported that they have talked to friends and neighbors about using FYN practices
- 48% reported that they would encourage anyone to use FYN practices in their yards

### ***Demonstration Landscapes***

The second component of the Miami-Dade FYN Program involves installing demonstration landscapes on public properties or properties that are readily accessible to the public. These FYN Demonstration Landscapes utilize drought-tolerant, low-maintenance plants and illustrate ‘Florida-friendly’ landscaping practices. FYN Demonstration Landscapes also contain educational signage on the nine FYN principles. Three Demonstration Landscapes were installed in Miami-Dade County in 2001, and five more have already been installed in the first half of 2002. Photos of some of these Demonstration Landscapes can be viewed on the Miami-Dade FYN website, at <http://miami-dade.ifas.ufl.edu/programs/fyn/fynphotos.htm>. A publication listing all of the FYN Demonstration Landscapes in Miami-Dade County—in addition to numerous other publications relating to low-maintenance landscaping in south Florida—can be accessed from the FYN publications pages, at <http://miami-dade.ifas.ufl.edu/programs/fyn/fynpublications.htm>.

### ***Yard Certifications***

The third component of the Miami-Dade FYN program involves yard certifications. Homeowners can work through a checklist and rate their own yards using *The Florida Yardstick Workbook* (available on the Miami-Dade FYN website, at <http://miami-dade.ifas.ufl.edu/programs/fyn/publications/fynworkbook/Florida-Yardstick-Workbook.htm>). If their yard scores 36” or more on the ‘Florida Yardstick’, it qualifies as a Certified Florida Yard. Once the yard is certified, the owner receives a certificate and a sign to place in their yard. FYN programs in some of the smaller counties place a major emphasis on yard certifications. However, with a population of 2.5 million people and only two FYN personnel in Miami-Dade, an emphasis has not been placed on this aspect of the program until recently.

The yard certification component got a boost in March 2002 when the Campus & Community Alliance for North Dade (Alliance) voted to adopt their Florida Yards Initiative. As part of this initiative, St. Thomas University (STU)—which is one of the primary members of the Alliance—agreed to host and sponsor a Florida Yard Advisor training curriculum for its students. Starting this fall, the first group of students will be trained as Florida Yard Advisors (FYAs). These student FYAs will use their community service hours to work with residents in the north Dade community to either certify their yards or teach them what they can do to create their very own Certified Florida Yards. The beauty of this approach is that there will be a perpetual source of volunteers to carry on the yard certification component of the Florida Yards Initiative in north Dade.

### ***Watershed Initiatives***

At the heart of the nation’s Clean Water Action Plan is the ‘watershed approach’, which represents a new paradigm for protecting and restoring water resources in the U.S. The key to this approach with respect to nonpoint source pollution and water conservation education is in tailoring the educational message to the particular needs of the clientele within an individual watershed. The rest of this paper will summarize two specific watershed initiatives that the Miami-Dade FYN program is currently involved in.

### **Miami River**

The Miami River is the largest river in Miami-Dade County. It is also a vital working river that runs through the heart of urban Miami. The Miami River has been, and continues to be affected by severe pollution problems—originating from both point and nonpoint sources. This pollution threatens the

economy and well-being of the inhabitants that live and make a living along the river. The pollution also threatens the health of the river ecosystem, as well as the fragile ecosystem of Biscayne Bay, which is the water body into which the Miami River flows. For the past few years, the Miami River Commission (MRC) and the Trust for Public Land have been developing plans for a Miami River Greenway that will improve the health and aesthetics of the Miami River corridor. Last year, FYN partnered with the MRC and other environmental education providers to develop a Stormwater Action Plan for the Miami River. This Action Plan includes a strong educational component, and FYN will be working with the MRC and the other organizations to assure that the various constituencies within the Miami River corridor receive the appropriate education. Some of the possible educational approaches to be implemented in this Action Plan will be discussed in the next section.

### **Biscayne Bay**

Biscayne Bay is a shallow subtropical estuary located along the southeastern coast of Florida. The Bay hosts a diverse and productive aquatic environment, including seagrasses and hard-bottom soft corals and sponges. It encompasses a marine ecosystem totaling approximately 428 square miles, and a drainage area of 938 square miles—of which 350 square miles are freshwater and coastal wetlands in Miami-Dade, Broward, and Monroe counties. The Bay is home to Biscayne National Park, Oleta River and Bill Baggs state parks, and the Biscayne Bay Aquatic Preserve. The Bay also houses one of the largest passenger and commercial ports of call in the world—the Port of Miami. Biscayne Bay supports important sport and commercial fisheries, and is also a source of recreation for sailing, fishing, swimming, and sunbathing for an impressive 16% of the state's population, annually.

Biscayne Bay has been significantly modified over the past century, and poor water quality continues to threaten the habitats comprising the Bay ecosystem. The Bay still receives substantial contaminants, sewage, and disturbance due to its proximity to Miami and to a steadily growing population of several million people along its coastline. Even so, Biscayne Bay remains one of the world's great water bodies and a defining feature of life in Miami-Dade County. Thus, the challenge is to find new and better ways to strike the delicate balance between maintaining, protecting, and restoring the natural systems that keep the Bay healthy and vital, and meeting the needs of growing numbers of people who live, visit, and work within the Biscayne Bay watershed.

Miami-Dade FYN, in partnership with Florida Sea Grant, has recently teamed up with an innovative coalition initiative called the Biscayne Bay Environmental Education Alliance (BBEEA) to expand the watershed approach to educating people about the negative effects of nonpoint source pollution on Biscayne Bay. The over-arching goal of the BBEEA is to develop and implement a coordinated and comprehensive environmental education campaign targeting all segments of the Miami-Dade community that will ultimately establish an informed public who will not only carefully utilize and manage Biscayne Bay, but who will also realize and appreciate the benefits of the Bay's long-term protection and restoration. The specific objectives of the BBEEA campaign include (1) compiling a database of existing educational programs; (2) analyzing and assessing educational programs to report on gaps, duplications, and opportunities; (3) organizing an active partnership structure to develop environmental education priorities for Biscayne Bay; and (4) implementing a Biscayne Bay Education Action Plan that will be guided by the goals of the project, by partnership priorities, and by results of the program analysis.

The BBEEA is a coalition of many groups, and is being spearheaded by Citizens for a Better South Florida (CFABSF), a non-profit environmental education organization with a mission to improve quality of life by instilling environmental awareness within south Florida's multilingual, multicultural communities. The coalition includes chambers of commerce, universities, non-profit organizations, governmental agencies, civic groups, media, businesses, and professional associations. The strategy

employed to maintain engagement among these diverse entities includes holding meaningful monthly stakeholder meetings; hosting an online Bay Bulletin Listserve; utilizing the existing network of non-BBEEA meetings to keep partners informed; compiling a directory of environmental education programs and providers; and creating an effective speakers' bureau with a single, unified campaign identity.

The target audiences in the BBEEA campaign include primary, secondary, and post-secondary students and educators; the general public, with an emphasis on minorities; public officials; direct users of the Bay, with an emphasis on boaters; and tourists. The task of educating this large and diverse audience necessitates a coalition approach to leverage education programs or opportunities across the array of stakeholder groups. Furthermore, the BBEEA educational campaign must also include a broad range of educational tactics. Youth education programs might include field visits to natural areas, outdoor science labs, beach clean-ups, festivals, tree planting events, fishing clinics, art contests, and in-class environmental curricula. Adult programs may consist of boat tours, public forums, festivals, and media campaigns. Educator and business leader programs may focus on training workshops and focus group sessions. The sub-campaign to educate tourists could involve certification of 'green friendly' hotel practices, employee training sessions, advertising in tourism publications, and effective signage at restaurants, retail establishments, and hotels. Boaters could find educational materials at marinas, with license issuance, and at marine supply stores. The FYN component, in particular, could include more landscape demonstration projects, speaking engagements with homeowner groups, training workshops or certifications for large private landscape companies, and public service announcements on nonpoint source pollution. Overall, these tactics represent only a handful of campaign elements that could be combined or altered to address multiple audiences.

The BBEEA campaign will be launched in January 2003. Preliminary materials to be developed include a speakers' bureau packet that will contain talking points, poll results, and a 6-page color report on the state of the Bay, complete with maps highlighting problem areas and conservation opportunities. Funding for the BBEEA is being provided by a grant from the South Florida Water Management District. The partners associated with the BBEEA, including the Miami-Dade FYN Program, may benefit from the grant to fund specific campaign components.

## **CONCLUSION**

The FYN program has been highly successful statewide—in part, because it is supported and championed by the FDEP, and also because it is a program of the UFCES, which has a long history of providing quality education to the public. Perhaps equally important are the efforts of FYN personnel throughout the state to actively develop mutually beneficial partnerships with other environmental education providers in their respective areas to leverage resources and to build upon trusted working relationships to the greatest extent possible. The Miami-Dade FYN Program and CFABSF have a strong track record of implementing successful team projects, and will continue to work closely together to reverse the trend in excessive water use and uncontrolled nonpoint source pollution in the large, urban, and highly diverse Miami-Dade County, and throughout the environmentally sensitive south Florida region.

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