

September 2014

Annual Report  
Broward County NatureScape/SBBC Partnership Agreement

**Seventh Annual Progress Report  
NatureScape/Broward Schools Environmental Initiative  
Covering the Period July 11, 2013 – June 30, 2014**

This is the seventh annual progress report prepared under the Partnership Agreement to implement the terms for support of the NatureScape Broward program within the Broward County School District areas as originally approved by the School Board of Broward County (SBBC) on May 22, 2007 and by the Broward County Board of County Commissioners (BCBCC) on June 12, 2007. A new five year agreement was approved by SBBC on October 16, 2012 and by BCBCC on December 11, 2012. The first renewal of the current agreement was approved by SBBC on December 2, 2013.

The current agreement period builds upon the joint efforts and achievements realized during the initial agreement and focuses on creating sustainable schools in a holistic approach that brings all of the County's efforts, resources, and programs under an umbrella initiative, thereby maximizing access and the use of various tools. A key component of the agreement is the Green Schools Recognition Program, being implemented as the P<sub>3</sub> Eco-Challenge, a program that acknowledges and rewards schools and teachers for implementing environmentally sustainable measures and green initiatives within their schools.

This focus notes that educational enhancement and fostering of sustainability as a core value provides students with critical life skills that jointly support economic, environmental, and social priorities – the foundation for success and measured performance in the public and private sectors – and is fundamental to future planning, business practices, and personal behaviors in support of long-term economic competitiveness, preservation of vital resources, and our quality of life. A review of the tasks under the agreement follows.

Pursuant to the renewal agreement, the period covered by this report covers the period July 11, 2013 through June 30, 2014. During this reporting period, the following progress in meeting the Agreement's tasks was achieved:

**Task 1: Broward County Green Schools Recognition Program.** Following the development of a sustainability rubric for Broward schools (see below), the P<sub>3</sub> Committee, a multi-disciplinary team comprised of the County's Natural Resources Planning and Management Division (NRPMD), now the Environmental Planning and Community Resilience Division (EPCRD, but referred to as NRPMD throughout this report), the Broward Environmental Education Council (EEC), and SBBC staff adopted the name "The P<sub>3</sub> Eco-Challenge" as the name for the Awards Program and to distinguish itself from

other programs. "P<sub>3</sub>" stands for "Preserving the Planet for Posterity". This task consists of several subtasks:

- a) Coordinate with SBBC on fundraising efforts for the awards program.  
Working closely with SBBC Administration, NatureScape staff made over 100 solicitations to agencies, public and private companies (local, national and international), financial institutions, and nonprofit groups to seek funds for the Second P<sub>3</sub> Eco-Challenge Recognition Awards program. These solicitations were made in person, by phone, by letter, and email. Sponsors were offered the opportunity to participate at five different levels of sponsorship, with each sponsorship level providing for increasing levels of recognition based on the amount of contribution. These requests resulted in the successful receipt of approximately \$30,000 in cash, prizes, and in-kind items for the 2014 Broward P<sub>3</sub> Eco-Challenge Awards Ceremony and have provided contacts for future sponsorships from potential sponsors, a number of which have indicated that they would contribute if they had additional time for their corporate offices to process the requests.

During this year's fundraising process, members of the P<sub>3</sub> committee, along with other individuals, made suggestions for over twenty new possible sponsors. The sponsorships obtained from these suggestions accounted for over \$5,000 in contributions this year. The list of 2014 P<sub>3</sub> sponsors and their sponsorship levels follows:

**2014 P<sub>3</sub> ECO-CHALLENGE SPONSORS**

<b>Sponsor</b>	<b>Sponsorship Level*</b>
Advanced Roofing	Bronze
Allstate Resource Management	Eco-Friend
Broward County Parks & Recreation	Bronze
Calvin, Giordano & Associates	Bronze
Everglades Foundation	Bronze
Everglades Holiday Park	Gold
Explore Learning	Bronze
Florida Ag in the Classroom, Inc.	Bronze
Guy Harvey Foundation	Silver
Hazen and Sawyer	Gold
Houghton Mifflin Harcourt	Silver
JM Family Enterprises	Gold
Miller Legg	Eco-Friend
Museum of Science and Discovery	Bronze
National Wildlife Federation	Gold
Publix	Bronze
Salvation Army (The)	Eco-Friend
Sawgrass Nature Center and Wildlife Hospital	Eco-Friend
Science Eye	Eco-Friend
South Florida Audubon Society	Silver
Youth Environmental Alliance	Eco-Friend
Wacky Wild Science	Eco-Friend
Whole Foods	Platinum

**\* Sponsorship levels:****Platinum-\$5,000****Gold-\$2,500****Silver-\$1,000****Bronze-\$500****Eco-Friend-\$250**

- b) Maintain and enhance the rubric. In order to recognize schools, teachers, and students that are implementing sustainable environmental practices, a matrix or rubric was developed through extensive coordination with County agencies and SBBC staff. Following the first two years of implementation of this matrix, the rubric has been edited to reflect changes in County agency responsibilities/programs and is currently being reviewed to determine what additional modifications might be made to increase its use amongst teachers and schools in year 3 of the P<sub>3</sub> Eco-Challenge. In the past, NRPMD staff has also worked to

create and hyperlink the resources that are available for the schools in each category.

- c) Coordinate solicitation and review of submissions for Green School recognition program. Throughout the school year, NatureScape staff actively promoted the P<sub>3</sub> Eco-Challenge and encouraged participation from schools and teachers. The P<sub>3</sub> Eco-Challenge was featured in the *SchoolScapes* e-newsletter, the SBBC's environmental and STEM web pages, and at the Broward Education Foundation Expo in February as well. NRPMD staff met regularly with other members of the P<sub>3</sub> Committee to help set up rules for the submissions of the P<sub>3</sub> applicants as well as to discuss other issues. This year, we more than doubled our participation level with 30 schools entering the Challenge. Victor also sought out individuals to serve as judges for the P<sub>3</sub> Eco-Challenge. In a related matter, Victor also joined a committee to help the district complete an application for a Florida Green Schools Award, an awards program from the Florida Department of Environmental Protection (FDEP), the Florida Department of Education (FDOE) and a host of community partners. It recognizes the environmental achievements of students, teachers, classes, schools, and school districts through the state and is supported by the P<sub>3</sub> Eco-Challenge.
- d) Develop the awards package, secure venue, and host ceremony. Following the successful hosting of the 2013 P<sub>3</sub> Eco-Challenge Recognition Ceremony and the positive comments received about the facility, NRPMD staff once again secured the County's Long Key Nature Center to serve as the venue for the 2014 Awards ceremony. Multiple meetings were held between NRPMD, SBBC and EEC staff in order to develop the final Awards Ceremony Program. NRPMD staff reached out to multiple members of the local environmental community to help identify a potential keynote speaker and a master of ceremonies for the program. P<sub>3</sub> Committee staff was ultimately able to secure a keynote speaker as an in-kind contribution from one of this year's sponsors and master of ceremonies duties were shared amongst P<sub>3</sub> committee members.

The development of the awards package and distribution of awards were reviewed and adjusted as final plans for the ceremony came together to ensure that the majority, if not all, of the P<sub>3</sub> entrants would receive something. While the P<sub>3</sub> Eco-Challenge is promoted as offering a prize of \$2,000 to the top school, \$500 to the top teacher, and eReaders for winning students, NRPMD staff was successful in raising enough sponsorship commitments which allowed not only for a quality event, but also for additional cash awards and prizes to all the applicants of the 2014 P<sub>3</sub> Eco-Challenge. By the date of the Ceremony, approximately \$30,000 in cash, educational materials, and in-kind prizes had been secured for the event. Additional details about this year's P<sub>3</sub> Eco-Challenge Recognition Ceremony along with winners can be found

in the attached June *SchoolScapes* newsletter. A summary report on the Recognition Ceremony is also included as an Appendix to this annual report.

## **Task 2: Development of new curriculum, programs, and tools and teacher trainings.**

Under the partnership agreement, NRPMD is exploring new curriculum resources, programs, tools, and trainings to offer to students, teachers, and staff to improve programming to the school community. Much of the focus of the past year has been to develop resources for teachers to better communicate about climate change. Although a presentation on the impacts of climate change to South Florida's natural resources has been a regular part of the Habitat Steward Training offered to teachers in the summer, this past year NRPMD developed a PowerPoint presentation and resource list to provide teachers with references for introducing the subject, in the absence of specific state-approved curriculum. The PowerPoint and resource list have been developed carefully to avoid the ongoing debate about climate change and focus specifically on the findings of climate scientists at the national level. These new materials were initially introduced at the teacher trainings beginning in June 2014.

In order to expose students to climate change issues and policy development, the NRPMD invited students and teachers to either attend or watch live from their classrooms the 5<sup>th</sup> Annual Southeast Florida Regional Climate Leadership Summit held in Fort Lauderdale in November 2013. Working in coordination with the STEM and Instructional Resources staff, NRPMD invited schools to attend and an online weblink was sent to the schools. New River Middle School accepted the invitation to attend in person and sent forty students with teachers and chaperones. Students and teachers were able to participate in two sessions and to be present during the keynote address. Another teacher from Driftwood Middle School also attended a number of the Summit's sessions.

NRPMD was able to work with one of the editors of *Tropical Connections* to supply a class set of books to New River Middle School's Marine Science Magnet Department. *Tropical Connections* is a 473-page book that features entries on topics ranging across every aspect of the marine ecosystem, from mangrove forests to coral reefs. NatureScape staff obtained and delivered the books to the school. This book was also given to each of the participants of the Habitat Steward Training Class.

NRPMD has also been working with the Central Broward Water Control District's outreach coordinator to identify contacts at all schools in their district in order to provide educational programming on water management at those schools. Their outreach coordinator contacted NRPMD to identify new contacts at the schools from which their previous contacts had relocated to other schools. NRPMD staff also worked with the Outreach Coordinator to add new agencies to and update the H<sub>2</sub>O Teacher's Outreach Network Brochure for distribution to the schools.

NRPMMD continues to coordinate with teachers and apprise them of available resources and grant and educational opportunities. During this reporting period, this included:

- STEM and Instruction resources staff were invited to attend the County's Climate Change Task Force Meeting held on November 11, 2013. During this meeting, a presentation on climate change education was made by Julie Lambert, Ph.D., Associate Professor of Environmental and Science Education and Alana Edwards (Doctoral Student) Education and Training Coordinator, Center for Environmental Studies of Florida Atlantic University. The FAU personnel presented a summary of an online series of learning modules funded by NASA's innovations in climate education program. These modules are not currently ready to be assimilated into the state's or District's curriculum but it was an opportunity to introduce these professionals to the STEM and Instructional Resources Staff.
- NRPMMD staff also discussed Climate Change Education curriculum with Jennifer Hammonds of the National Wildlife Federation. Jennifer is a former science educator and the manager of STEM education for NWF's Eco-Schools USA program. Utilizing best practices in science education, NWF promotes STEM careers for the youth of today.
- A *Climate Change Resources for Teachers* list has been created and distributed during recent teacher trainings.
- NRPMMD alerted teachers to an invitation to apply for the Florida's Agriculture in the Classroom's 2014 Excellence in Teaching about Agriculture Award and an all-expenses paid trip to the 2014 National Agriculture in the Classroom Conference in Hershey, Pennsylvania.
- *Silent Invaders*, a new video produced by the University of Florida about invasive exotic plants and their effect on the environment, was shared with teachers on the email distribution list and is being used in a number of classrooms. As an example, this video was used by one teacher in advance of programming by Victor on native and invasive exotic species found in the Everglades.
- NRPMMD staff provided teachers with guidelines and application requirements for groups to apply for and receive free native trees to plant or give away in their community, along with a planting guide and a resource form from the National Wildlife Federation's (NWF) Trees for Wildlife program, an educational and community service program dedicated to teaching children and adults about the important role of trees for both wildlife and our communities.
- At the request of one of the teachers who attended a Habitat Steward training, NRPMMD introduced him to outreach staff from the City of Hollywood's

water utility to provide water education to his students. The utility provided education utilizing the EnviroScape Coastal Model which demonstrates point sources and nonpoint sources of pollution -- and the effects of both on wetlands, estuaries, the ocean, beaches and even coral reefs and shellfish beds.

- NRPMD staff coordinated with NWF staff to discuss the Eco-Schools USA Program. Eco-Schools USA is a holistic program hosted by NWF in the United States that is part of an international program found in 50 countries engaging 11 million students. Eco-schools strives to make environmental awareness and action an intrinsic part of the life and culture of a school, including students, teachers, administrative staff, non-teaching staff and parents, as well as the local community. As a result of this coordination, we have incorporated many of the elements, or pathways, of the program into the P<sub>3</sub> Eco-Challenge rubric. NRPMD has promoted the program with schools, many of which have registered over the course of the year.
- At the request of a teacher at Deerfield Beach Middle School, Victor participated in a field trip as part of a "Build-A-Fieldtrip" program to learn more about marine and barrier island ecology. In addition, Victor was able to meet with this field trip company, learn about their programs, and share this new resource with other district teachers.
- Victor met with the environmental team of Driftwood Middle School to help them plan their Green Apple Day of Service. He helped them organize the event identifying approximately 25 agencies and groups including local and state resources that are available to come to schools to provide lessons and support on projects.
- A Florida Agriculture in the Classroom Teacher grant opportunity for classroom projects that teach Florida school children about the importance of agriculture and introduces them to agricultural producers was sent to teachers. This grant was for \$1,000.
- In partnership with the South Florida Audubon Society and with funds from JM Family Enterprises (both P<sub>3</sub> Gold Level Sponsors), NRPMD was able to provide the materials and supplies for the installation of a tropical fruit garden at Gulfstream Middle School. We also invited Master Gardeners and members of the Rare Fruit and Vegetable Council to work with students and staff for the installation and education day in March.
- NatureScape staff coordinated two Inter-agency meetings of Broward County agency staff in September 2013 and April 2014 to discuss how the County agencies can improve providing services to the schools. This group includes staff from many Broward County agencies (Air Quality, Aviation, Energy and Sustainability, Parks and Recreation, Pollution Prevention, Recycling and Transit).

- Working with various teachers, NRPMD applied for a number of additional grants during the reporting period including the National Fish & Wildlife Foundation's Wells Fargo Environmental Solutions for Communities grant, the GRO1000 Grassroots Grant, and the Muhammad Ali Center's Peace Garden Grant. Unfortunately, these grant funds were not realized.
- Members of the NatureScape team also attended the Tropical Plant and Industry Exhibit (TPIE) to support the Agricultural programs for Broward County Public Schools. Staff also went to meet TPIE participants to identify potential classroom resources for teachers and to solicit for P<sub>3</sub> sponsorship.

In all trainings provided to teachers, NRPMD provides a teacher workshop packet containing information on local, state and national environmental resources, NatureScape programmatic information, and various environmental brochures. These items provide teachers with additional classroom resources. The resource list is updated on a regular basis and the packet's contents appear on the Edmodo website. As resource pages for teachers are updated, they are sent to STEM and Instructional Resources Staff to be updated on Edmodo. The value of this resource was acknowledged by one of the teachers at Ramblewood Middle School who contacted and scheduled a number of the individuals included on this list to make presentations to his students.

During the reporting period, NatureScape teacher training workshops were held for teachers on July 17, 2013 and June 18, 2014. They were organized in conjunction with SBBC's District Custodial Grounds and Curriculum & Instruction departments. There were a total of 28 participants that attended these in-service trainings. Teachers who completed the trainings were required to share a new lesson/activity with their students based on the training and post the activity on Edmodo in order to be eligible for in-service points.

A National Wildlife Federation Habitat Steward training class was held in August 2013 with 19 teachers participating. This is a 5-day training course which is an introduction to environmental stewardship that is held in various park locations and natural areas throughout the county and includes both various presentations by local experts and hands-on classroom and outdoor activities. The new teacher Habitat Stewards are required to volunteer a certain number of hours each year to foster environmental stewardship by working with NatureScape and within their schools and the community. They routinely attend NatureScape meetings and participate in community outreach and education events.

### **Task 3: NatureScape presentations in the schools.**

During the reporting period, NatureScape continued to maintain an active presence in the schools, providing 232 programs and support for projects as staff was available. Programming was provided to over 5,200 students at 22 schools during this reporting period. This does not include those who participated in Water Matters Day or the River of Grass Expedition. Teachers have regularly



indicated that they appreciate the presentations that afford their students an opportunity to get outside and learn. Although some opportunities for programming had to be turned down as staff prepared for this year's P<sub>3</sub> Eco-Challenge, every effort was made to reschedule programming whenever possible.

Prior to the start of the official school year, programming was provided to students in an enrichment summer camp for students at Welleby Elementary School in Sunrise and a program on water pollution at Lauderhill Middle School. Welleby school teachers had learned about NatureScape by attending an in-service training during the previous reporting period. During the summer camp, NatureScape staff introduced the container garden and state symbols programs. Using the EnvironScape model, a summer program on water pollution was presented at Lauderhill Middle School.

During the school year, Victor provided programming to students at McArthur High School, using the school's campus as an outdoor classroom. He discussed the history of water management in south Florida, non-point source pollution, water conservation, Florida Friendly landscaping principles, wildlife habitat certification, and the importance and value of pollinators. Victor also worked with and the Agriscience Resource Teacher for Broward County Schools students, presenting the "Tree-mendous!" program from the Project Food, Land & People Resources for Learning Guide.

Ramblewood Middle School invited Victor back to help work with students to build more container gardens to add to the ones that were built with students in previous years.

Victor helped organize the Green Apple Day of Service at Driftwood Middle School, as well as providing programming using the Native Plant Park that was installed through the partnership in 2009. This program was highlighted on BECON TV.

Utilizing available school funds, Westpine Middle School enhanced one of their gardens with Victor's assistance. William Perez, a teacher who participated in the Water Matters Day Literary Contest as well as the National Wildlife Federation Habitat Steward training, wanted to use this as a learning opportunity for his students and himself. He had his students create landscape design plans based on resources provided by NatureScape and other sources. When the designs were ready, Victor was invited to evaluate and discuss the student designs with each of his classes and provided outdoor programming on the history of water management in south Florida, non-point source pollution, water conservation, flora and fauna, wildlife habitat certification, and the importance and value of pollinators as well.

At Lyons Creek Middle School, Victor provided a campus tour in advance of a workday with students and members of the school's Eco-Club as they prepared to install new plants and mulch to their bird and butterfly garden.

As part of the 20<sup>th</sup> Annual Wheelabrator Symposium for Environment and Education, Victor supervised New River Middle School students in a planting day at John U. Lloyd State Park. Working with state park staff, volunteers, NatureScape and other partners, students learned about proper planting techniques and installed shade trees near the pavilions and a variety of plants, including sea oats to help stabilize the dunes. This project was one of many used for the school's participation in the symposium.

At the request of Glades Middle School, NRPMD staff was asked to assist in finding presenters for a Career Day in October. Staff was able to coordinate with the local public utilities to provide presenters.

Fourth grade students at Manatee Bay Elementary School participated in the State Symbols program as Victor visited each classroom during his visit to the school in November. Using the "Florida's Fabulous" book series, students learned about the Florida Panther, the American Alligator, the Sabal Palm, and many other native flora and fauna and the role they play in the Everglades ecosystem. As in all presentations, Victor used this opportunity to promote reading and going outside to connect with nature. Ten fifth grade classes were also provided programming utilizing the EnviroScape model to teach point and non-point source pollution.

NRPMD staff received an invitation to participate in a Community Partner Career Day at Driftwood Elementary School and assisted in finding presenters for the event.

In December, Victor provided environmental education programming at Attucks Middle School. He worked with students both inside and outside of the classroom.

As a result of a successful grant application by NRPMD, the State of Florida Park Service, and the Youth Environmental Alliance, a local non-profit organization, a dune restoration at John U. Lloyd State Park was conducted in December with the assistance of students from Embassy Creek Elementary. The partners were able to install thousands of sea oats and other plants along the sand dunes, clean up the area, and restore threatened beach and dune areas in the park while raising awareness of the importance of environmental stewardship. The funding was provided by Waste Management through their Think Green Grant.

Flamingo Elementary School's Garden Club wanted to learn more about the trees and plants on their campus so they invited Victor to provide environmental education programming. Victor took students on a tour of their campus to discuss the trees and plants and provided suggestions for areas of the school campus that would benefit from future landscape improvements.

A recently graduated Habitat Steward teacher from Parkside Elementary School invited Victor to bring his container garden program to the students at her school.

Students learned about plant structures and created container gardens to grow their own plants from seeds. Students also spent some time in the school's garden learning about the plants growing on their campus.

The EnviroScape model was presented to all of the sixth grade science, as well as some marine magnet science programs at New River Middle School. This programming reached over 500 students and teachers during which Victor met with the marine magnet coordinator, teachers, and members of the administration to discuss the Second Annual P<sub>3</sub> Eco-Challenge. It should be noted that New River Middle School won as the top school in the 2014 P<sub>3</sub> Eco-Challenge.

In order to provide real-time information about Everglades ecology to students, Victor participated in the *River of Grass Canoe Expedition*, sponsored by the Arthur Marshall Foundation. The *Expedition*, a 5-day journey, traveling from Lake Okeechobee thorough the Miami River and ending in the Biscayne Bay, included educational programs being broadcast "live" from the Kissimmee – Okeechobee – Everglades Watershed into classrooms. Everglades experts, both on the Expedition and at their workplaces elsewhere, provided presentations twice each day. Members of the NRPMD staff also assisted in the planning stages of this event.

In April, NRPMD staff provided an outdoor educational station for second graders using Lake Forest Elementary School's wildlife and vegetable gardens, at their Second Annual Health Fair. This program entailed setting up multiple stations having to do with exercise, healthy eating, and healthy foods/habits.

At the invitation of the Nova Southeastern University Library, Victor presented two container garden programs for their afterschool STEM Program to grade 1-6 students from some of the nearby schools.

In support of a project for a Manatee Bay Elementary School student, NatureScape staff coordinated with staff from the Broward County Land Stewardship Program to identify locations for nesting boxes for the student's American kestrel nesting box project. Her project was highly publicized and won a Summer of Service Award from Local 10 News. She was also the first place elementary school student winner of the P<sub>3</sub> Eco-Challenge.

As part of an Arbor Day event, Victor planted a tree with students at Driftwood Elementary school and taught the students about proper planting techniques and the importance of trees.

As part of Florida Agriculture Literacy Day, Victor presented a new book during a Career Day at Orange Brook Elementary School that showcases the variety of agricultural projects being done in schools to elementary students, along with other items, such as Florida Agriculture posters, fruits and vegetables, seeds and plants.

At another Career Day at Boulevard Heights Elementary, Victor utilized the campus to discuss the history of water management in south Florida, non-point source pollution, water conservation, flora and fauna, wildlife habitat certification, and the importance and value of pollinators with students and their teacher. After Career Day, students from the school's STEM program also took the same tour.

Victor provided campus tours to students and teachers at Silver Ridge Elementary in May and taught students about the history of water management in South Florida, the native trees and plants on their campus, and the role they play for native and migratory wildlife. Karen Gonzalez, a teacher for gifted and advanced, has invited Victor to provide programming each year for the past few years. Her students tend to the school's garden during the school year.

Victor provided another campus tour at Deerfield Beach High School, and utilized the opportunity to meet with the science department head and invite teachers to the teacher trainings as well as introducing them to the Deerfield Beach Community Wildlife Habitat Team.

NatureScape staff continued programming through the summer of 2014 at libraries, Welleby Elementary School's summer enrichment program, and the Science Eye Summer Camp at Tree Tops Park.

#### **Task 4: Know the Flow training for facilities managers and landscape personnel.**

Maena Angelotti, NatureScape Broward's Water Conservation Specialist, organized three custodial irrigation training sessions which were held at the Broward Government Center West Building in October 2013, and March and May 2014. The five and one-half (5½) hour training provides information to improve the efficiency of school irrigation system to save water and money, and maintenance fundamentals. The training also provides an introduction to NatureScape Broward, an overview of the County's *Know the Flow* outreach program, and landscaping best management practices. This program involves both indoor and outdoor activities.

Maena explained the irrigation evaluation process to attendees and solicited schools for participation in the irrigation evaluation process. While performing evaluations and site visits, additional recommendations are provided on native and drought tolerant plantings, the use of Melaleuca mulch, proper pruning techniques, and additional best management practices. During the reporting period, there were 50 participants who attended these trainings.

#### **Task 5: NatureScape learning gardens/school certifications.**

Two new native learning gardens were installed during the reporting period. The reduction in the number of new gardens planted this year is due, in part, to the

lack of District funding for new landscaping materials and the focus on increasing school participation in the P<sub>3</sub> Eco-Challenge. Where funds were identified and grants obtained however, NatureScape assisted in making improvements to existing landscaping, learning gardens, and school campuses. Eleven schools received NatureScape certification during the reporting period:

- Ramblewood Elementary School
- Dillard High School
- Coral Springs High School
- Westpine Middle School
- Hollywood Hills High School
- Lauderhill Middle School
- Hallandale High School
- Sheridan Park Elementary School
- Bayview Elementary School
- Blanche Ely High School
- Coconut Palm Elementary School

At the request of teachers from William Dandy Middle School, Ramblewood Elementary School, Parkway Middle School, Broadview Elementary School, Westpine Middle School, Lloyd Estates Elementary School, Whispering Pines Center, Attucks Middle School, and Fort Lauderdale High School, members of the NatureScape team went to their respective campuses to discuss landscaping projects and improvements, curriculum ideas and student programs. NRPMD staff provided assistance in identifying contacts and resources to assist these schools with their projects.

NatureScape staff met with McNicol Middle School staff and the South Florida Audubon Society to discuss the installation of the trees and plants for an orchard at McNicol. The funding was provided through a Whole Kids Foundation grant that was obtained through a partnership with the South Florida Audubon Society. This orchard was installed in November.

In another partnership with the South Florida Audubon Society, funds from JM Family Enterprises were utilized to provide materials and supplies for the installation of a tropical fruit garden at Gulfstream Middle School. NRPMD also invited Master Gardeners and members of the Rare Fruit and Vegetable Council to work with students and staff for the garden installation and education day which was held in March.

A new tree was installed on Silver Ridge Elementary School's campus in recognition of being the winner of the first P<sub>3</sub> Eco-Challenge. The tree was dedicated on behalf of Whole Foods Market, the Platinum Sponsor for the 2013 P<sub>3</sub> Eco-Challenge. In an effort to enhance this project, NRPMD teamed up with the school and the Custodial Grounds Department to add additional trees and plants to replace a turf area with a small garden.

NatureScape Broward was able to successfully secure \$1,000 in funding from the South Florida Water Management District for landscape improvements at several schools. After visiting local nurseries to select the best available trees, the NatureScape staff also arranged for teachers and volunteers who have attended NatureScape trainings to work with the students to install and care for the trees on their campuses. The majority of these installations were completed in conjunction with 2014 Earth Day and Arbor Day celebrations. The campuses that received trees and mulch were:

- Driftwood Elementary School
- McArthur High School
- Parkway Middle School
- Pembroke Pines Charter Elementary School
- Royal Palm Elementary School
- West Broward High School
- Western High School
- Westpine Middle School

At Manatee Bay Elementary School, NatureScape staff worked with students and teachers to install plants and enhance their butterfly and bird garden. This included outdoor educational programming followed up by additional indoor classroom education, as well.

As part of maintaining the School District's certification as a School District Wildlife Habitat (July 2012), NatureScape staff also completed and delivered the National Wildlife Federation Annual School Certification Report along with the District Annual Goals.

#### **Task 6: Water Matters Day partnerships.**

The Twelfth Annual Broward Water Matters Day, the County's largest annual environmental event, was held on March 8, 2014, with the theme of "*Water-Our Greatest Resource*". 3,973 people participated and attended this year's event- a record. As always, the event focused on water conservation and environmental stewardship. Sponsorships for this year's event provided over \$28,000 to help offset the costs associated with this event.

As a partner in this County-wide environmental event, the school community was instrumental in contributing to numerous aspects of the event, including promotion of the event in the schools prior to the event and the distribution of the plant materials for the tree and plant giveaway portion of Water Matters Day. The tree/plant giveaway is a Water Matters Day highlight and approximately 3,555 trees, shrubs, groundcovers, and wildflowers, were distributed to Broward County residents at the event this year.

Promotions for the event included newspaper, internet and radio ads. Posters in English and Spanish were distributed to public libraries, parks, and all of the

Broward County Public Schools. An article promoting the event also appeared in the *SchoolScapes* newsletter prior to the event.

As in past years, middle and high school students were asked to participate in the annual Water Matters Day literary contest. Middle and high school students were asked to prepare an essay related to this year's theme.

This year's theme was "*Water Our Greatest Resource*" which recognizes that our natural resources deserve our attention and protection. With that in mind, we chose the following topic for this year's literary contest:

*Why is water our greatest resource and why is water conservation so important? What kinds of things can you do to conserve and protect our water resources?*

High school students were asked the same question with this variation:

This year's theme is "*Water Our Greatest Resource*" which recognizes that our natural resources deserve our attention and protection. With that in mind, we have chosen the following topic for this year's literary contest:

*Why is water our greatest resource and why is water conservation so important? Calculate your family's "water footprint" at <http://environment.nationalgeographic.com/environment/freshwater/change-the-course/water-footprint-calculator/>. How does your family's water usage compare to the average family? What kinds of things can you do to conserve and protect our water resources?*

Essays were reviewed and judged by NRPMD staff. NRPMD staff, along with assistance from the outreach coordinator at the Central Broward Water Control District, solicited prizes for the winners and for their teachers. Prizes included tickets to scientific, educational, and natural area attractions.

This year, middle school winners came from McNicol and Pompano Beach Middle Schools. The top middle school winner won a week of free summer day camp at Camp Live Oak at Hugh Taylor Birch State Park. The camp offers a program called the Teen Eco Experience which includes hands-on leadership experience, field trips, environmental adventures and projects, and team building opportunities.

The literary contest winners at the high school level were from Cooper City, South Plantation, and Everglades High School.

In addition, students and teachers from schools actively participated in hosting many booths at this year's Water Matters Day:

- Monarch High School students hosted a "*Relay for Life*" booth. They also ran the water and event survey stations.
- McNicol Middle School had a "*Growing Awareness in All*" booth.
- Embassy Creek Elementary students hosted a "*Kids Art Village*" featuring a variety of recycled artwork
- An "*Agriculture in the Classroom*" display was staffed by the Resource Teacher for Agriscience Education and a few students.
- Cross Creek students and their teacher were part of the County's Emerald Awards Ceremony. The students are the ones who handcraft the decorative stones that are presented to winners in various NatureScape categories.
- South Plantation High School Everglades Magnet Program students and their advisor brought their Everglades water bus.
- Members of the Nova High School Marching Band provided musical entertainment.

Eighty students and teachers from Embassy Lakes Elementary School, Falcon Cove, McNicol and Westglades Middle Schools, and Cooper City, Cypress Bay, Flanagan, Monarch, South Plantation and Western High Schools volunteered throughout the event and assisted with the distribution of trees and plants in the plant giveaway area. Students from some charter and private schools also volunteered.

Additionally, it is estimated that over 825 Broward school students attended the event for education and extra credit.

As with previous Water Matters Day events, exit surveys were conducted to determine why attendees participated in Water Matters Day and whether participants find the event worthwhile/enjoyable. The following responses from 128 surveys completed at the 2013 event were received and are typical of the responses received in previous years:

***Why did you attend Water Matters Day?***

- Educational Value - 78
- Yard Maintenance/Water Education - 71
- Free Stuff - 65
- Children's Activities - 40
- Entertainment - 27



***On a scale of 1 to 5, how did you enjoy Water Matters Day? (5=enjoyed a lot)***

- 1 – 0
- 2 – 1
- 3 – 3
- 4 – 22
- 5 – 97

**Task 7: Irrigation system design and operational evaluations.** During the reporting period, NRPMD's Water Conservation Specialist, Maena Angelotti sought out training to help her in her job duties and was successful in becoming a Water Star Certified Irrigation Professional, a professional certification offered by the State of Florida.

Maena conducted sixty-seven (67) irrigation evaluations at thirty-nine (39) school facilities. Actual annual water savings realized through irrigation system evaluations conducted at those schools is 55,315,539 gallons providing an annual estimated cost savings of approximately \$94,000. Annual water savings realized through irrigation system evaluations conducted at all schools to date is 244,520,084 gallons, which provides an annual estimated cost savings of approximately \$363,788.

To date, 386 irrigation evaluations have been conducted at 182 schools, (122) elementary schools, all middle schools, (13) high schools, (4) centers, and in all (28) Innovation Zones.

NRPMD, through coordination of joint training workshops and sharing of information through irrigation evaluation reports, has developed an excellent working relationship with site-based custodial staff, as well as Gary Hines, who has transitioned to the position of Grounds Manager, Physical Plant Operations Division. Information developed during evaluations has been made available to staff at each facility and to School Board management.

**Task 8: Water Audits within schools.** NRPMD recently expanded its effort's within the schools to include indoor water use audits of schools. During this reporting period, four indoor audits were performed at one high school (Stranahan), one middle school (Driftwood), and two elementary schools (Maplewood and Walker). The Stranahan High School audit was performed with assistance from students from Stranahan High School and South Plantation High School who were trained in water audit techniques by Maena prior to the audit.

The indoor water audit program follows procedures outlined in the South Florida Water Management District's (SFWMD) *Water Efficiency and Self-Conducted Water Audits at Commercial and Institutional Facilities: A Guide for Facility Managers*. This guidebook was prepared by SFWMD based on its own

experience assessing water use efficiency at its own facilities. According to the U.S. Geological Society, commercial and industrial facilities in Florida consume over one billion gallons in fresh water each day, which constitutes approximately 16% of the total fresh water used in the state.

The water audit is a systematic survey of all water-using fixtures, appliances, equipment, and practices at a campus. The audit can identify leaks, areas of excessive consumption, and other opportunities for efficiency improvements; it can also identify the degradation of previously efficient devices. Audits can form the basis of efficiency improvement and investment planning, and provide a benchmark for measuring water efficiency program successes.

Specific recommendations on efficiency improvement measures for most points of water use have been outlined for these schools. Estimates of their costs, savings, and investment recovery periods have been included whenever possible. Data collected during the assessment were entered into the SFWMD's water use and savings calculators associated with its water use self-conducted water audit guide to generate these savings estimates.

The findings of the audits are as follows:

The total cost estimate to follow the recommended water-use efficiency improvement measures at Stranahan High School is \$26,112. The total *annual* potential savings is \$34,045 and the potential *annual* water savings is estimated at 2,752,206 gallons.

The total cost estimate to follow the recommended water-use efficiency improvement measures at Driftwood Middle School is \$5,700. The total *annual* potential savings is \$21,473 and the potential *annual* water savings is estimated at 1,735,891 gallons.

The total cost estimate to follow the recommended water-use efficiency improvement measures at Maplewood Elementary School is \$7,166. The total *annual* potential savings is \$14,843 and the potential *annual* water savings is estimated at 1,199,931 gallons.

The total cost estimate to follow the recommended water-use efficiency improvement measures at Walker Elementary School is \$8,410. The total *annual* potential savings is \$5,452 and the potential *annual* water savings is estimated at 440,764 gallons.

NRPMMD will continue these audits throughout the length of the agreement.

In a related matter, in November 2013, the head custodian at Stranahan High School contacted NRPMMD's Water Conservation Specialist with a concern regarding a major leak at their pool. NRPMMD facilitated coordination with the City of Fort Lauderdale and in having the leak fixed.

**Task 9: Coordination/administration.**

Formal coordination meetings and conference calls between SBBC and County staff were held at various times during the reporting period to discuss the implementation of the various tasks associated with the Partnership Agreement and to address issues of shared interest. Partnership and P<sub>3</sub> Eco-Challenge meetings were held in September, October, November, January, April, and June during the reporting period. Separate meetings were also held to update the P<sub>3</sub> Eco-Challenge rubric.

Coordination meetings included one or more of the following representatives from the Broward County Environmental Protection and Growth Management Department's Natural Resources Planning and Management Division:

- Dr. Jennifer Jurado, PhD, Division Director
- Victor Suarez, NatureScape Broward Education Coordinator
- Diana Guidry, NatureScape Broward Outreach Coordinator
- Robert Rudolph, Water Planning Program Manager
- Bob Carew, NatureScape Irrigation Service Coordinator
- Barbara Powell, Water Resources Manager
- Maena Angelotti, Water Conservation Specialist
- Kimberly Mayo, NatureScape Program Assistant

Administrative issues related to the Partnership Agreement were discussed with the following representatives from SBBC administration:

- Gary Hines, SBBC Environmental Resources Manager/Manager Grounds Custodial/Grounds Department
- Shelly Meloni, Task Assigned Chief Facilities & Construction Officer
- Rob Jindracek, Manager, Energy Conservation Utility Management

Members of SBBC's STEM and Instructional Resources staff that participated in meetings relating to the P<sub>3</sub> Eco-Challenge included:

- Dr. Jeanine Gendron, Ed. D, Director of STEM and Instructional Resources
- Dr Lisa Milenkovic, PhD, STEM Supervisor
- Dr Marilyn Johnson, PhD, STEM Supervisor
- Dr. Carlotta Rody, Ed. D Instructional Facilitator
- Rosina Bencivenga, Instructional Facilitator
- Rebecca Malones, Instructional Facilitator

NRPM staff also regularly participates in meetings of the Superintendent's Environmental Technical Advisory Committee (SETAC). Victor, Diana and Barbara attended the only scheduled SETAC meeting of the year. Victor provided an update of the school partnership and the P<sub>3</sub> Eco-Challenge.

At the beginning of the school year, Victor attended the STEM and Science Department Heads meeting. He also introduced the teachers and department heads who were in attendance to other local community resources available to support environmental initiatives in the schools. The meeting was also an opportunity to reconnect with teachers that NatureScape has worked with in the past and meet new contacts at additional schools.

A number of internal meetings were held to prepare for the participation of students, teachers and chaperones in the 5<sup>th</sup> Annual Southeast Florida Regional Climate Leadership Summit.

During the reporting period, the County received an award from the National Association of Counties for the achievements of the Environmental Partnership with the School Board of Broward County.

Victor attended a US 20/20 City Competition meeting with STEM and Instructional Resources Staff in October in advance of preparing a grant.

NatureScape staff is occasionally invited to attend Innovation Zone meetings. During the reporting period, staff attended a Coral Glades Innovation Zone meeting to learn more about what is going on in the schools in the innovation zone and to offer the Partnership's programs and services.

Two editions of the "*SchoolScapes*" e-newsletter (attached) were published and distributed in January and June. This e-newsletter is distributed to hundreds of teachers and administrators as well as school district personnel such as curriculum staff, custodians, etc. This newsletter is provided to share updates on partnership activities including events and trainings. The newsletter is also sent to other teachers and staff, as requested, to help them learn more about the partnership.

NRPMMD provided a letter of support for Driftwood Middle School's application for a Magnet Schools of America Awards Program. The Magnet Schools of Merit Award recognizes member magnet schools/programs that demonstrate a high commitment to academic standards, curriculum innovation, desegregation/diversity efforts, specialized teaching staffs, and parent and community involvement.

NRPMMD staff also participated in meetings of the Broward Environmental Education Council. These meetings serve as a forum to prepare for the Envirothon and P<sub>3</sub> Eco-Challenge. The Envirothon is a problem-solving, natural resource education program for high school students. It is a field-oriented program in which students, working in teams, learn to use critical thinking skills, work as a team, and develop problem-solving and communications skills to answer written questions or conduct hands-on investigations about environmental issues. The program focuses on the same following five areas of study as the national Envirothon competition. These interrelated and broad study

areas teach a holistic approach to natural resource conservation and can easily be incorporated into a teaching curriculum.

Coordination meetings were held in November and December to prepare for the December 2, 2013 School Board meeting which included the partnership renewal, the Florida Green Schools Award, and a summary of the P<sub>3</sub> Eco-Challenge.

Victor also attended the Broward County Science Fair. He addressed teachers, judges, and sponsors about the Second Annual P<sub>3</sub> Eco-Challenge and told them how they can participate and serve as potential sponsors. At least two sponsors were successfully realized as a result of this meeting. He also reminded the group about Water Matters Day.

Finally, in accordance with the terms of the agreement, the annual report for the previous reporting period was provided to SBBC administration in September 2013 along with additional information to support the first annual renewal of the current Partnership Agreement.

For more information, please contact:  
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