



**11th Annual Progress Report
NatureScape Broward/Broward Schools Environmental Initiative
Covering the Period July 1, 2017 – June 30, 2018**



Executive Summary

This is the eleventh 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) in May 2007 and by the Broward County Board of County Commissioners in June 2007. NatureScape Broward is a program of the Environmental Planning & Community Resilience Division (EPCRD). A second five-year agreement was executed in December 2012. The current five-year agreement was executed in December 2017.



The scope of work 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 this Agreement is the P₃ Eco-Challenge, which acknowledges and rewards schools and teachers for participating/implementing environmentally sustainable measures and green initiatives within their schools. Other tasks within the Partnership Agreement as discussed herein include: Development of tools and trainings to enhance curriculum; NatureScape presentations in schools; Trainings for facilities managers; NatureScape learning gardens/certifications; Water Matters Day partnerships; Irrigation system evaluations; Water audits; and Coordination/Administration.

Primary support for implementation of the Partnership Agreement during the reporting period included the following:

- Jennifer Jurado, Ph.D., Division Director, EPCRD
- Carolina Maran, Ph.D., Water Resources Manager, EPCRD
- Robert "Rudy" Rudolph, Water Planning Program Manager, EPCRD
- Victor Suarez, NatureScape Broward Education Specialist, EPCRD
- Maena Angelotti, NatureScape Broward Water Conservation Specialist, EPCRD
- Kimberly Mayo, NatureScape Broward Program Assistant, EPCRD
- Susan Cantrick, Director of Applied Learning Department, SBBC
- Lisa Milenkovic, PhD, Supervisor, STEM+Computer Science, SBBC
- AnnMargareth Marousky, STEM+Computer Science, Instructional Specialist, SBBC
- Marilyn Johnson, PhD, Science Supervisor, SBBC
- Rob Jindrcek, Manager, Environmental Conservation/Utility Management, SBBC
- Ed See, Environmental Conservation/Utility Management, SBBC

A review of task progress under the current renewal period follows. This report covers the period July 1, 2017 through June 30, 2018.

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Task 1 – P₃ Eco-Challenge Program

This task supports SBBC's efforts to educate its community and engage in environmental practices within the schools through a Green Schools Sustainability/Recognition Program that acknowledges and rewards schools, teachers, and students for implementing environmental measures and green initiatives within their schools and communities. The task consists of four subtasks.



Coordinate Fundraising Efforts

Working with the SBBC's STEM + CS Department staff, NatureScape Broward staff within the County's Environmental Planning and Community Resilience Division (EPCRD), made approximately 50 solicitations to agencies, public and private companies (local, national and international), financial institutions, and nonprofit groups to seek funds for a Green Schools Recognition Awards program - P₃ (Preserving Our Planet for Posterity) Eco-Challenge. These solicitations were made in person, by phone, by letter, and by email. Sponsors were provided the opportunity to participate at five different levels of sponsorship. Each sponsorship level provided for increasing levels of recognition based on the amount of contribution. These solicitations resulted in approximately \$36,000 in cash, prizes and in-kind items for the P₃ Eco-Challenge Awards Ceremony and have provided a foundation for continued support and future sponsorships.

 <p>Platinum Sponsor</p> <ul style="list-style-type: none"> • Whole Foods Market • Wacky Wild Science 	 <p>GOLD SPONSOR</p> <p>Gold Sponsors</p> <ul style="list-style-type: none"> • National Wildlife Federation • JM Family Enterprises • Hazen & Sawyer • Everglades Holiday Park 	 <p>SILVER</p> <p>Silver Sponsors</p> <ul style="list-style-type: none"> • Marine Industries Association of South Florida • FIU SEAS Program • South Florida Audubon Society • Broward County Drone League • Diamond Del's Gem Mining Adventure • Betrock Information Systems • Florida Ag in the Classroom 	 <p>BRONZE SPONSOR</p> <p>Bronze Sponsors</p> <ul style="list-style-type: none"> • Calvin Giordano & Associates Inc. • Curriculum Associates • Allstate Resource Management • Alexanders Plant Farm • Educational Resource Solutions • Explore Learning • Museum of Discovery & Science • Broward County Parks and Recreation Division • Broward Sierra Group • Advanced Roofing
 <p>+ 9 Eco Friends</p>			

Once again, Whole Foods Market was a Platinum Sponsor for the awards ceremony. Their contribution/sponsorship was funded through the “Donate Your Dime” promotion at all Broward County Whole Food Markets and both NatureScape Broward and SBBC staff provided information on the P3 Challenge at several of these stores. NatureScape Broward staff also provided a booth at the Citrix Earth Day event to support the Challenge. Gold sponsors for the Awards Ceremony remained the same as in previous years as well, although Wacky Wild Science, a former Gold sponsor increased its in-kind sponsorship and this year became a Platinum level sponsor. Their prize is an in-school field trip bringing a museum experience to the whole school for 2 days. In addition, Broward County Drone League became a Silver sponsor, having been a Bronze sponsor last year. They donated drone presentations and trainings. Florida Ag in the Classroom also increased their contribution from Bronze to Silver level. Advanced Roofing returned this year as a Bronze (cash) sponsor.

Maintain and Enhance the Rubric

During the first year of the current agreement, a matrix or rubric was developed through extensive coordination with County agencies and SBBC staff in order to recognize schools, teachers, and students that are implementing sustainable environmental practices. Each year, the rubric is reviewed and modified to reflect changes in programs and comments from teachers and administration. The rubric is currently being reviewed once again to identify what modifications need to be made to reflect existing opportunities for the school community to showcase environmental stewardship within their schools and communities and how it might be modified to increase its use amongst teachers and schools. Work is underway to make changes to the P₃ Eco-Challenge on-line application process for implementation in the 2018-2019 school year.

Coordinate Solicitation and Review of Submissions

NatureScape Broward staff actively promoted the P₃ Eco-Challenge throughout the school year and encouraged participation from the teachers and schools. The P₃ Eco-Challenge was featured in the *SchoolScapes* e-newsletter as well as being promoted on the SBBC’s environmental and STEM web pages. While School Board staff was directly responsible for collecting submissions, NatureScape and other County staff met regularly with them to help identify and encourage schools and teachers that should apply, review submissions, as well as discuss other issues. The County staff also identified environmental professionals to serve as judges for the P₃ submissions.

Develop Awards Package and Host Ceremony

The P₃ Eco-Challenge is promoted as a contest offering a prize of \$2,000 to the top school, \$500 to the top teachers, and \$250 for winning students. However, as in past years, NatureScape Broward staff was extremely successful in soliciting significant sponsorship funds, which allowed for additional cash awards and prizes to all the applicants of the P₃ Eco-Challenge. By the time of the Awards Ceremony on May 9, over \$35,000 in cash, materials, and in-kind prizes and services had been secured for the event.

NatureScape Broward staff arranged for the Broward County Park Division's Long Key Nature Center in Davie to serve once again as the venue for the Awards ceremony. Multiple P₃ Eco-Challenge Committee planning meetings were held with EPCRD, SBBC, and the Environmental Conservation Organization (ECO) staff to develop the Awards Ceremony Program. SBBC staff was able to arrange for Charles Webster, Broward County Public Schools (BCPS) Legislative Affairs, to serve as Master of Ceremonies. NatureScape Broward staff arranged for Ms. Delaney Reynolds, a freshman at the University of Miami and the founder and CEO of the Sink or Swim Project, a

non-profit organization active in political advocacy and seeking solutions to advance climate change recognition and solar power to serve as the Keynote Speaker.

On May 9, 2018, Broward County Mayor Beam Furr and School Board Member Laurie Rich Levinson, along with 200 attendees, congratulated prize winners. Overall winner Orange Brook Elementary School won \$2,000 and runner-up Beachside Montessori Village won \$1,000. Thirty-eight other cash prizes ranging from \$50 to \$500 were awarded to schools, teachers, custodians and students. In addition, numerous schools and teachers received certificates for in-classroom programming by professional environmental educators. Guests took home decorations, including native wildflowers.



School Board Member Laurie Rich Levinson presents checks and plaques to the winning students.



Orangebrook Elementary School was the overall winner of the P₃ Eco-Challenge. In addition, Orange Brook's Monika Moorman won the Educator category and Poovini Illankovan won the student category for elementary schools. Here, they were recognized with Superintendent Runcie at a School Board meeting with winning participants in the "How Low Can You Go" Challenge.

Task 2 - Development of new programs, tools and teacher trainings

Under the partnership agreement, EPCRD is continually exploring opportunities for new curriculum, programs, tools, and trainings to offer to students, teachers, and staff to improve programming within the school community.

Trainings remain an integral part of the Environmental Partnership. Thirty-nine teachers received a NatureScape-based training during the reporting period; one-day teacher training workshop was held on August 1, 2017. Teachers who completed the training and their follow-up assignments were eligible for in-service points.



Day Four 2018 Habitat Stewards class: teachers remove invasive plants and plant new dunes at Hollywood Beach

During this reporting period, the NatureScape Broward staff also hosted a National Wildlife Federation Habitat Steward five-day training for 28 teachers (June 2018). Habitat Steward and P₃ Eco-Challenge winners Elaine Fiore from Beachside Montessori Village and Linda Gancitano from Driftwood Middle School, spoke about environmental opportunities within the school district and "greening" campuses. Elaine and Linda also

shared their experiences with projects at Beachside Montessori Village and Driftwood Middle schools and offered suggestions for similar projects on the new stewards' campuses.

NatureScape Broward frequently updates its Educator Resource List which is provided to teachers and includes local, state and national environmental educational resources that can assist them in enhancing their curriculum. New resources are added to the list as they are identified.

EPCRD staff worked with School Board staff to create Water and Climate Change Curriculum modules for an Environmental Science CANVAS Course. This was used by approximately two dozen high school and middle school teachers to provide real world correlations to next generation science standards. Staff also provided presentations to students of Ms. Habenicht, a Habitat Steward teacher at Pioneer Middle School, who was teaching this course.

Per the direction of SBBC staff, NatureScape Broward trainings have continued to include additional resources to help teachers inform their students about Climate Change. This includes references to climate change concepts and lessons that can be shared in the classroom as well as science-based referenced websites.

In September, National Wildlife Federation (NWF) invited SBBC and EPCRD staff to attend the Climate Education and Opportunities Collective Impact Summit in Sundance, Utah. The Summit was an opportunity to network with climate change educators throughout the country from federal, state, and local governments, non-profit organizations, and academia. The Summit provided an opportunity to discuss the possibility of teacher training on climate change with Carey Stanton, the senior Director for Education at National Wildlife Federation. This ultimately resulted in Ms. Stanton coming to Broward County to provide a two-day teacher training in June. Ms. Stanton shared insights into how to effectively teach climate change utilizing a number of NWF's educational resources including those specifically geared towards middle and high schoolers. Videos and lesson plans to support climate education can be found at <http://climateclassroom.org/>. A second website, <http://climateclassroomkids.org>, is focused on grades 3-6.

In addition, with the inclusion of Citizen Science as the Special Projects/Innovation category in the P₃ Eco-Challenge, EPCRD staff has prepared a list of popular Citizen Science websites, where teachers and students can provide information from their mobile devices or laptops to assist researchers in scientific data gathering. One excellent source to help get teachers started can be found at <https://scistarter.com/>.

Staff shared information with teachers about the free Global Learning and Observations to Benefit the Environment (GLOBE) program for [Eco-Schools USA](#) offered through NWF. This training provides learning opportunities that are scientifically rigorous while allowing students to address sustainability through service learning.

A Climate Change game, "Game of Floods", adapted to Broward County by EPCRD staff, was also introduced to students this year. The game fosters a collaborative dialogue and deeper understanding of the environmental, economic and social choices that communities will face in preparing for sea level rise.

NatureScape Broward staff along with NWF Habitat Stewards from around the country completed the "new" National Wildlife Federation (NWF) Habitat Steward Host Training over a three-month period. Host training enhances delivery of the Habitat Steward Training for teachers that support our schools and provides new resources.

NatureScape Broward staff helped the Math and Science Departments to secure venues for their department meetings at multiple County Parks. During this reporting period, staff at Anne Kolb Nature Center provided programming to all of the science teachers where they met parks staff and learned about programs offered and field trip venues.

At the Gifted and Talented Symposium held at Pompano Beach High School, 160 teachers received NWF Butterfly Kits for their students which contain native milkweed seeds, gardening tips and directions to grow and expand habitat gardens.

Task 3 - NatureScape presentations in the schools

NatureScape Broward maintained an active presence in the schools, providing presentations and support throughout the year. During the reporting period, 223 programs were delivered to 6,132 students.

June to August 2017

Presentations at libraries and summer camps:

- Coral Springs Elementary School- “Summer Break Spot” hosted by the Coral Springs Police Department (Title I students);
- Hallandale Green Team Youth Summer Program (toured Ingalls Park, discussed habitat certification, container gardens);
- Additional programs and booths at Walter C Young Library, Hollywood Library, Boulevard Gardens, Lauderdale Lakes, and Atlantic Tech College; and
- Environmental Science and Everglades Restoration Magnet Camp at South Plantation High School: General 9th grade orientation, environmental field day and magnet program orientation.



Presentations/Events/Activities

Much of September was spent responding to clean-up activities associated with Hurricane Irma- staff surveyed the damage to landscapes at various schools. A Science Night was held at Challenger Elementary School: 500 students and parents learned about water and energy conservation, habitat certification and other County programs.



Water Tower Competition judging

In October, multiple campus tours are held throughout the school year for elementary, middle, and high schools students; many campus tours are scheduled by teachers attending NatureScape Broward trainings. Campus tour programs were presented at Driftwood and Pines Middle Schools and South Plantation High School. Other activities included participation in the Gifted and Talented Symposium for 160 teachers; the STEM and Computer Science Education Resource Fair for 150 participants; a Human Water Cycle presentation at Quiet Waters Elementary School; and judging for the American Water Works Association’s Water

Tower Competition, a science-oriented competition introducing high school and middle school students to engineering and professions in the water industry fields.

During November and December, campus tours were conducted at Walter C Young and Plantation Middle Schools and Dillard and Hollywood Hills High Schools. Staff participated in Science Curriculum Night at Challenger Elementary School for over 400 participants and, presentations at after-school eco clubs.

A select number of students were invited to participate in the 9th Annual Southeast Florida Regional Climate Leadership Summit which was held at the Fort Lauderdale Convention Center. EPCRD and SBBC staff organized student participation and held a round-table discussion on various climate issues with special guests and presentations by:

- Broward County Mayor Beam Furr
- City of Hollywood Mayor Josh Levy
- Delaney Reynolds, Youth Speaker at the Regional Climate Summit/Founder of the Sink or Swim Project
- Erik Neugaard, Port Everglades
- Dr. Carolina Maran, EPCRD Water Resources Manager
- Katie Lelis, EPCRD GISP

EPCRD staff also sought student input on what types of presentations and activities they would like to include in a potential Youth Climate Summit.



School and County staff, along with guest speakers participated in a round-table discussion with students at the 9th Annual Southeast Florida Regional Climate Leadership Summit.

Career Days

NatureScape Broward staff participated in Career Days at Forest Hills, Royal Palm, and Oriole Elementary Schools. In addition, staff connected multiple schools with Florida Agriculture in the Classroom, Broward County Air Quality, local municipalities, Florida Forest Service, the South Florida Water Management District, South Florida Audubon Society, and the South Florida Public Archaeology Network for Career Day presentations. EPCRD staff also participated in the STEM Girls United Conference at McArthur High School in June, a conference for 5th grade girls to learn about the exciting world of STEM jobs.

Regional Envirothon for High School Students

NatureScape Broward staff assisted School Board staff and members of the Environmental Conservation Organization in hosting this annual event in February. The Envirothon is a field-oriented program. Students, working in teams of five, use critical thinking, problem-solving, and communications to answer questions and conduct hands-on investigations about environmental issues. These inter-related and broad study areas teach a holistic approach to natural resource conservation and can easily be incorporated into a teaching curriculum.

Young Southeast Asian Leaders Initiative Program – Year Four

EPCRD's visiting Fellow from Malaysia made a presentation to Nova Eisenhower Elementary School in May where the Fellow compared and contrasted local habitats in her native Malaysia with the flora and fauna of the Everglades.

PSA Water Conservation Contest for Elementary, Middle and High School students

Students created a 30-second PSA video with the focus *#watermatters – a day without water?* The contest was designed to inspire and empower students to educate others about the importance of water conservation. The videos had to show water conservation at schools and include what a day without water looks like to the students. The winning school was Orange Brook Elementary School which was recognized at the P₃ Eco-Challenge Awards Ceremony and won a water bottle filler for their entry "Newsflash, No Water...". Other top finishers won vertical grow bags and composters.

"How Low Can You Go Contest"

NatureScape Broward staff helped school to monitor and reduce their water consumption for a new Water Conservation category.

"How Low Can You Go" partners with the Miami Heat Basketball franchise; the winning school get tickets to a Heat home game and other prizes.

Nine schools sought to reduce water consumption during an approximately three-month period. Driftwood Middle School won for reducing the most water and was recognized during a Miami Heat game. The How Low Can You Go Ceremony was held at American Airlines Arena; EPCRD provided t-shirts for the winning students and staff.



Winners of the "How Low Can You Go" water challenge at the Miami Heat basketball game

“An Inconvenient Sequel”

In celebration of Earth Day, Campus Climate Corps partnered with BCPS to present students with a private screening of this movie at the Savor Theater in Fort Lauderdale. Broward Mayor Beam Furr and Commissioner Nan Rich provided opening remarks discussing the issue of climate change and climate resiliency. After viewing the film, Dr. Jennifer Jurado provided additional remarks and led a question and answer session with the students.



Students attended “An Inconvenient Sequel” screening with Broward Mayor Beam Furr

Community Foundation of Broward and the Funders Network Grants - Junior Sustainability Stewards at Dillard High School



Junior Sustainability Stewards and mentors

EPCRD received grant funds to introduce at-risk students to STEM/environmental citizen science, experimentation, mentoring, scholarships and a career path toward environmental science or advocacy/policy making. The Junior Sustainability Stewards program, along with YMCA afterschool STEM and Robotics Programs at Dillard High School, aimed to give students the skills and professional connections for them to 1) become “climate sustainability stewards” and advocate on behalf of their neighborhood’s

environmental issues, and 2) identify potential environmental/sustainability career pathways. Junior Stewards received support from mentors who worked with them to dig deep into regional environmental issues and challenges facing their community and develop their own scientific solutions and research. At the end of the school-year, students presented their final Capstone projects to a panel of environmental judges and then competed for paid summer internships. Five summer internships were completed, and the summer program took students on three off-site field trips to local regional parks and natural recreation areas.

Ongoing Classroom Programs Offered to Teachers and Students

Everglades Food Web activity

Students play the role of different flora and fauna in the Everglades and learn about adaptation, habitat and interdependence, as well as human impacts to that fragile ecosystem.

Container Garden Program for Elementary and Middle School Students

Students learn about plant structures and create their own container gardens. This program also incorporates and explains the concepts of reduce, reuse and recycle and presents action steps that students can take to incorporate sustainable behaviors into their daily lives.

EnviroScape Model

Staff continue to use this demonstration model to teach about non-point source pollution and water quality through a visual, hands-on interaction.

Task 4 – Youth Climate Summit

A new task, planning is currently underway for a Youth Climate Summit. A meeting to discuss the scope of the Summit, possible venues, and speakers was held in July. The Summit is tentatively planned for January 2019 in Fort Lauderdale.



Task 5 -Staff Training for Custodial Staff, Facilities Managers, and Support Personnel



During the reporting period, NatureScape Broward's Water Conservation Specialist organized three custodial irrigation training sessions (October, March, and June) at McArthur High School which allowed for actual field repair lessons. Custodial staff were able to identify and fix minor repairs on McArthur High's campus, as well as being given an opportunity to do some planting, mulching, and pruning. A total of 40 facilities staff attended these trainings. During the six-hour trainings, NatureScape Broward and SBBC staff provided

information on improving the efficiency of school irrigation systems to save water and money, along with maintenance fundamentals. Additionally, training on indoor water conservation best management practices is provided to BCPS staff which are also reminded about the high rates of water consumption in the schools, retrofits available for faucets, toilets, and kitchen use, including Somat machines and pre-rinse spray valves. Staff stressed the importance of reporting water

leaks and items that need repair to appropriate SBBC personnel, as well as ways to combat high water use at the schools.

The trainings also introduce the NatureScape Broward program, an overview of the County's "Know the Flow" outreach program, and information on landscaping best management practices. NatureScape Broward plans on continuing to host these trainings at various schools to enable the hands-on experience for the staff as well as providing landscape improvements at the same time.

Task 6 – Environmental Recognition/School Certifications

Broward Habitat Connectivity Project - Year Two

The Broward Habitat Connectivity Project, a partnership between NatureScape Broward, National Wildlife Federation, and the Community Foundation of Broward seeks to provide habitat for migrating songbirds, increase tree canopy within urban Broward County communities where existing canopy is lacking, and engage residents in environmental stewardship and habitat restoration. During the first year of the project, native trees and plants were installed at six Broward schools - Lauderdale Lakes Middle School, Oriole Elementary School, Silver Lakes Middle School, North Lauderdale PK – 8, Wingate Oaks Center, and Larkdale Elementary School. In this second year of the project, NatureScape staff continued to work within the school and neighboring communities, providing training to teachers as well as labor and plant materials for supplemental bird and butterfly gardens. Additional landscaping tools, garden hoses and mulch were provided to schools, teachers, and students at these schools.



Tree giveaways were held in the communities where these schools are located to encourage greater participation in the Habitat Connectivity project. (Lauderhill, Lauderdale Lakes, North Lauderdale - 150 trees.) After Hurricane Irma, NatureScape staff replaced trees at each of the schools affected by the storm.

Other landscape installations and National Wildlife Federation's Schoolyard Habitats® were provided by NatureScape Broward staff during the reporting period:



Memorial tree planting at Piper High School to honor victims at Marjory Stoneman Douglas High School

NatureScape Broward staff arranged for the planting of a Memorial tree at Piper High School to honor the victims of the Marjory Stoneman Douglas shooting along with pollinator garden and a butterfly and lady beetle release.

Challenger Elementary School was awarded a Whole Foods Fruit Garden Grant in conjunction with NatureScape Broward's partnership with South Florida Audubon. Approximately 12 trees were planted on the campus by students in February.

A total of 38 public, public charter schools and centers were certified as **National Wildlife Federation's Schoolyard Habitats®** during the reporting period. Also see Map **Appendix A**.

Boyd Anderson High School	Challenger Elementary School
Chapel Trail Elementary School	Everglades Elementary School
Hawkes Bluff Elementary School	J.P. Taravella High School
Liberty Elementary School	Oriole Elementary School
Panther Run Elementary School	North Lauderdale PK-8
Pine Ridge Education Center	Piper High School
Rock Island Elementary School	Sandpiper Elementary School
Sawgrass Elementary School	Village Elementary School
Welleby Elementary School	Sheridan Technical High School
Hollywood Central Elementary	Hollywood Park Elementary
West Hollywood Elementary	Orange Brook Elementary School
Mirror Lake Elementary School	Parks Lakes Elementary School
Pines Lakes Elementary School	Lakeside Elementary School
Atlantic Technical College & Magnet High School	Charles R. Drew Elementary School
Seagull Alternative High School	C. Robert Markham Elementary
Davie Elementary School	Central Charter School
Franklin Academy Pembroke Pines (K-8) Campus	Pembroke Pines Charter Elementary - West Campus
Renaissance Charter School at Pines Charter school	RISE Academy Schools of Science and Technology
Somerset Pines Academy	Somerset Academy Pompano

Task 7 – Water Matters Day Partnerships

The Sixteenth Annual Broward Water Matters Day was held on March 10, 2018, with the theme of “*Water Matters ... and Conservation Pays.*” 3,872 Broward County students and residents attended this year’s event. In addition to the large number of students and their parents that attended, numerous water conservation and environmental stewardship activities were directly supported by students. Approximately 80 students from many schools assisted as volunteers with the distribution of 2,300 trees, shrubs, groundcovers and wildflowers in the plant giveaway area.

BCPS STEM+CS hosted booths and numerous schools hosted and/or assisted in booths providing educational activities, displays, games and fundraising. See table below.



SCHOOL PARTICIPATION IN WATER MATTERS DAY

MONARCH HIGH SCHOOL ENVIRONMENTAL CLUB	Tree Giveaway, Event Surveys
DRIFTWOOD MIDDLE SCHOOL	Tree Giveaway
MIRAMAR HIGH SCHOOL	Tree Giveaway
MARTHUR HIGH SCHOOL	Agriculture in the Classroom – Tree Giveaway
GRIFFIN ELEMENTARY ECO PATROL	Micro Plastics in Our Environment
SOUTH BROWARD HIGH SCHOOL	Plastic Free Mermaids
SOUTH PLANTATION HIGH SCHOOL	Water conservation and Everglades restoration
EVERGLADES RESTORATION MAGNET PROGRAM	Tree Giveaway
CORAL SPRINGS HIGH SCHOOL	National Wildlife Federation – Ranger Rick
HALLANDALE HIGH SCHOOL	Tree Giveaway
SEAGULL SCHOOL	Tree Giveaway
WESTERN HIGH SCHOOL – LATINOS IN ACTION	Event Parking and Tree Giveaway
MIRAMAR HIGH SCHOOL	Tree Giveaway
HOLLYWOOD HILLS HIGH SCHOOL	Tree Giveaway
CYPRESS BAY HIGH SCHOOL	Tree Giveaway

An estimated 830 students attended the event as well for extra credit. As always, a literary contest for students is part of the event. For the participating schools, the topic for this year’s school literary contest was “*If you were asked to organize a Youth Climate Summit, what kind of topics and presentations would you suggest, what speakers do you think would offer the greatest inspiration and information and where do you think it should be hosted?*” The input provided by

these students, potential participants at the Youth Climate Summit, will be used to help plan the event.



School Board Member Nora Rupert poses with Alec Zamudio of Apollo Middle School, winner of the Water Matters Day Literary Contest.

School Board Member Nora Rupert presented the prizes during the opening ceremonies at the event. Winning students and their teachers from Glades Middle, Plantation Middle, Apollo Middle, McArthur High, Western High, and South Plantation High Schools were awarded tickets to educational venues, natural area attractions and airboat tours. The prizes were solicited by NatureScape Broward staff with assistance from the outreach coordinator for the Central Broward Water Control District. The top middle school winner won a week of “Teen Eco Experience” day camp from Camp

Live Oak which includes hands-on leadership experience, field trips, environmental projects, and team building opportunities. The top high school winner won four passes for a snorkeling trip from Dixie Divers.

Promotions for Water Matters Day were extensive and included a press release distributed to local media through Broward County’s public information office; radio and newspaper advertisements; Facebook and Twitter; and posters in both English and Spanish that were distributed to public libraries, parks, and all of the Broward County Public Schools. Additional promotions for the event included a feature on the Broward County website and mention at numerous events hosted by the EPCRD that led up to Water Matters Day. An article promoting the event also appeared in the *SchoolScapes* newsletter prior to the event.

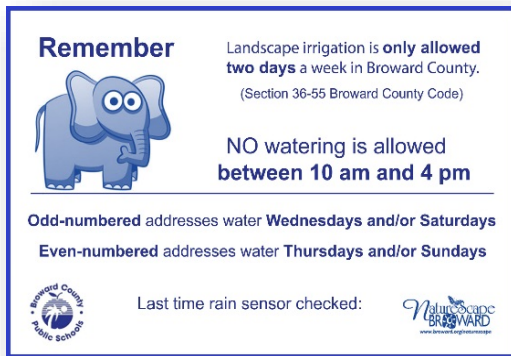


Cindy Griffin and Rebecca Malones from the STEM+ Computer Science Program (bottom, second and third from left) received the 2018 Water Matters Day partner proclamation on behalf of SBBC.

Partners and sponsors of the 2018 Water Matters Day event, including the School Board, were recognized by the Broward County Board of County Commissioners in a proclamation ceremony on February 27, 2018.

Task 8 – Irrigation System Design and Operational Evaluations

During the reporting period, 38 irrigation evaluations were conducted at 15 school facilities (including two follow-up evaluations) with 35,820,939 gallons saved. NatureScape Broward's School Water Conservation Specialist encourages the school's custodial staff to be present during the evaluation and when feasible, to make repairs as the evaluation takes place. This provides an opportunity to provide information regarding best management practices for the irrigation system as well as reminders regarding efficient irrigation. In addition to assessing the irrigation system, landscaping advice is often requested. Resource materials to enhance the school's landscaping are also provided as available. Evaluations were conducted at West Hollywood, Central Hollywood, North Lauderdale, Lake Forest, Peters, and Westchester Elementary schools; Nova (2) and Indian Ridge Middle schools; Lauderdale 6-12; Coral Springs, Dillard, and Nova (2) High Schools; and, Atlantic Technical College and Sheridan Technical Center.



New stickers were prepared for all irrigation controllers at schools to remind staff of Broward County's Irrigation Ordinance.

June 2009 is providing an annual estimated cost savings of over \$923,244 and over 417,847 gallons of water saved. **(See Appendices B and C)**

A number of this year's evaluations were on systems utilizing municipal water supplies as their irrigation source. These evaluations produce considerable cost savings for the School District, especially when settings are modified to comply with the Mandatory Year-Round Landscape Irrigation Rule. To date, irrigation evaluations have been conducted at over 200 schools on their irrigation systems. Annual water savings realized through irrigation system evaluations conducted at all schools since

Through coordination of joint training workshops and sharing of information, NatureScape and site-based school custodial staff, along with SBBC staff have developed an excellent working relationship. Information developed during evaluations has been made available to staff at each facility and to School Board management. This year, NatureScape Broward staff along with SBBC personnel began videotaping the training to create a refresher video training tutorial for custodial

staff that have taken the class previously to stay current on any updated information regarding water conservation.

Additionally, three ESP-SMTe irrigation controllers, and three soil sensors from a grant that EPCRD received from SFWMD were deployed at schools to assist in the District's water conservation efforts.

Task 9 – Water Audits within Schools

During the reporting period, the NatureScape Broward School Water Conservation Specialist, along with interns, conducted indoor water use audits at three schools-Nova Middle School, Nova High School and Sheridan Technical College. Students are asked each year to participate in the water audits. This year, students participating in an internship program at Broward County and a student attending the plumbing apprenticeship program at Sheridan Technical College were trained in doing the audits in the school bathrooms.



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

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 prepared and are provided to these schools as well as SBBC administration. Estimates of their costs, savings, and investment recovery periods have been included whenever possible. Using SFWMD's Guide, data collected during the assessment was entered into water use and savings calculators to generate savings estimates.

SBBC staff work with the NatureScape Broward Water Conservation Specialist to ensure that recommendations are within the framework of what can be accomplished at the School District. The findings of this year's audits are as follows:

The total cost estimate to follow the recommended water-use efficiency improvement measures at Nova High School is \$3,197. The total annual savings potential is estimated at \$19,248 and the potential annual water savings is estimated at 1,974,455 gallons.

The total cost estimate to follow the recommended water-use efficiency improvement measures at Nova Middle School is \$3,792. The total annual savings potential is estimated at \$19,544 and the potential annual water savings is estimated at 2,004,733 gallons.

The total cost estimate to follow the recommended water-use efficiency improvement measures at Sheridan Technical College is \$3,594. The total annual savings potential is estimated at \$32,875 and the potential annual water savings is estimated at 2,746,421 gallons.

In November 2017, the NatureScape Water Conservation Specialist was asked to investigate high water usage at Silver Shores Elementary School in Miramar. In conjunction with District staff, the source of the water loss was discovered, resulting in a District savings of 13,104,000 gallons of water. They were also able to test and obtain a new water meter for the school that was also deemed to be faulty.

Per the request of Environmental Conservation/Utility Management staff, the NatureScape Broward Water Conservation Specialist compiled a comprehensive spreadsheet of District water usage for Fiscal Years 2012 through 2017.

Task 10 – Coordination/Administration

Several formal coordination meetings and conference calls between SBBC and County staff were held to discuss the implementation of the various tasks associated with the Partnership Agreement, as well as to address issues of shared interest.

These meetings included one or more of the following representatives from EPCRD:

- Jennifer Jurado, Ph.D., Division Director
- Carolina Maran, Ph.D., Water Resources Manager
- Robert “Rudy” Rudolph, Water Planning Program Manager
- Victor Suarez, NatureScape Broward Education Specialist
- Maena Angelotti, NatureScape Broward Water Conservation Specialist
- Kimberly Mayo, NatureScape Broward Program Assistant
- Rose Bechard-Butman, NatureScape Broward Outreach Coordinator

Key members of SBBC that attended coordination meetings included:

- Susan Cantrick, Director Applied Learning
- Lisa Milenkovic, PhD, Supervisor, STEM+Computer Science
- AnnMargareth Marousky, Computer Science Instructional Specialist
- Cindy Griffith, Environmental Stewardship Instructional Facilitator
- Marilyn Johnson, PhD, Science Supervisor
- Rebecca Malones, Instructional Facilitator Math, Science, & Gifted Department
- Rob Jindracek, Manager, Environmental Conservation/Utility Management

- Ed See, Environmental Conservation/Utility Management

In addition to this high-level coordination, throughout the reporting period, NatureScape staff coordinated extensively with numerous teachers and other SBBC staff to ensure continued advancement of the partnership goals. During the many visits made by NatureScape staff to the schools, staff took the time to discuss the value of the P₃ Eco-Challenge and encouraged them to participate. Additionally, the NatureScape Broward Education Specialist promoted the P₃ Eco-Challenge at the Broward County Science Fair where he addressed teachers, judges, and fair sponsors about the Challenge and how they can participate and serve as potential event sponsors. These efforts resulted in securing additional P₃ Eco-Challenge funds this year, as well as providing an opportunity to promote Water Matters Day.

EPCRD worked with the National Wildlife Federation and SBBC to prepare a proposal for a major grant from the National Oceanic and Atmospheric Administration through their Environmental Literacy Grants program. The proposal, Building Community Resiliency through Broward County Schools, would help to fund Climate Change education for all middle school teachers. The group also partnered on submitting a grant for a Five Star and Urban Waters Restoration Grant from the National Fish and Wildlife Foundation.

NatureScape Broward staff were also able to identify numerous grant opportunities for teachers interested in identifying funding and improving their campus landscapes, as well as assisting on applications for various competitions and prizes. These included:

- Assisted Driftwood Middle School with the water portion of Green Apple application;
- Shared information on a \$500 grant opportunity from Warner Brothers called “Scooby Doo and the Mystery Machine Inc Doo Good” with teachers;
- Shared information on the “Craig Tufts Educational Scholarship” opportunity which funds youth participation at a week-long summer outdoor educational adventure camp. This scholarship was established in memory of Mr. Tufts, the former Chief Naturalist of the National Wildlife Federation; and,
- Shared information on Aquatic Plant Management Society’s scholarship fund for High School students.


Two editions of the *SchoolScapes* e-newsletter were distributed throughout the school system in January and June. This e-newsletter shares updates on the activities of the Environmental Partnership and is distributed to hundreds of teachers and administrators, as well as school district personnel such as curriculum staff and custodians. It is also sent to school staff after initial meetings have taken place to educate them about the Partnership and activities associated with it and other teachers and staff, upon request. The January 2018 edition of *SchoolScapes* announced the upcoming Water Matters Day and 2018 P₃ Eco-Challenge events, shared professional development training opportunities, programs being done in the schools, and introduced the Habitat Connectivity Project. The June 2018 edition of *SchoolScapes* highlighted the 2018 P₃ Eco-Challenge Awards Ceremony and achievements, Water Matters Day, and the Habitat Connectivity Project.

In accordance with the terms of the agreement, the annual report for the 2016-2017 School Year was provided to SBBC administration in September 2017 along with additional information to support the annual renewal of the current Partnership agreement.

Finally, there were several coordination meetings between EPCRD staff and SBBC staff in advance of preparing the new 5-year agreement that went into effect in December 2017.



Appendix A – Landscape Installations



A program of the Environmental Planning and Community Resilience Division

Is your school on the map?

(223 certified schools so far, Jan 2018)

NatureScape recognizes Broward County public schools certified as Schoolyard Habitats[®] through the National Wildlife Federation and schools which have been recognized through the Florida Friendly Landscaping Program[™].

It is our goal for every Broward County Public School Property to become certified as a National Wildlife Federation Schoolyard Habitats[®]

The Broward County School District is the first in the country to be certified by the National Wildlife Federation

2/3 of Broward County is Conservation Land

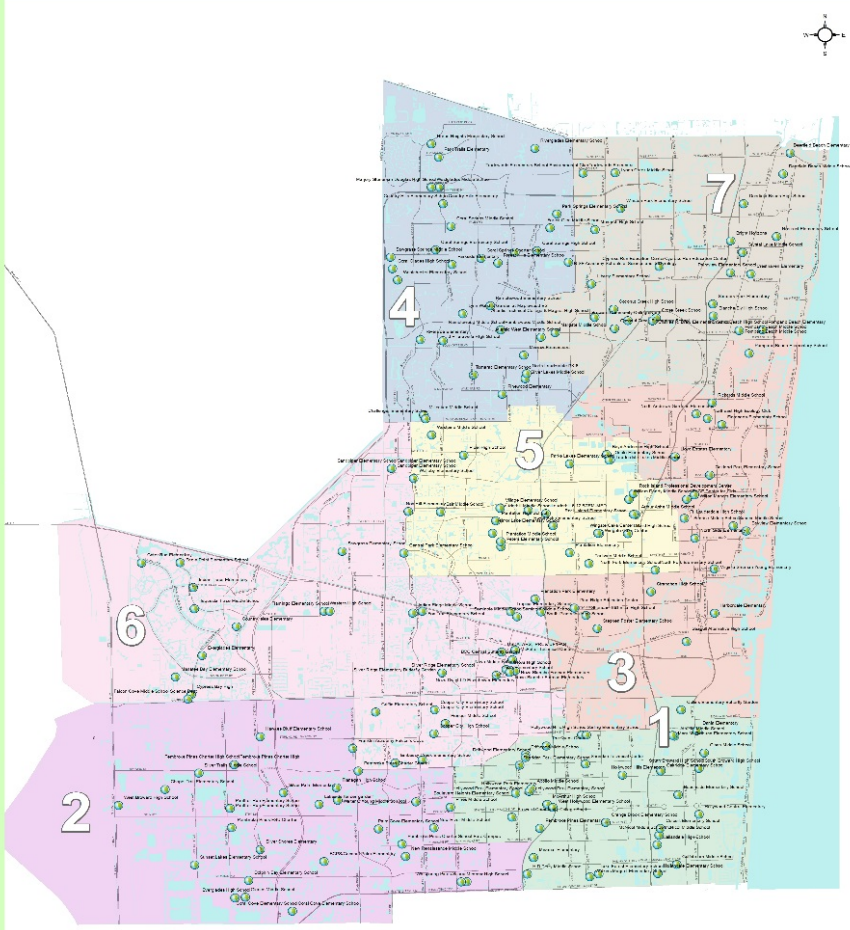
85% of Urban Broward County has applied for Community Wildlife Habitat certification, or is already certified


Certifications per District


- District 1 - 38
- District 2 - 31
- District 3 - 21
- District 4 - 33
- District 5 - 28
- District 6 - 42
- District 7 - 30

Total ----- 223

http://www.parksandrec.com/naturescape













Photo Credit: Barbara Richie



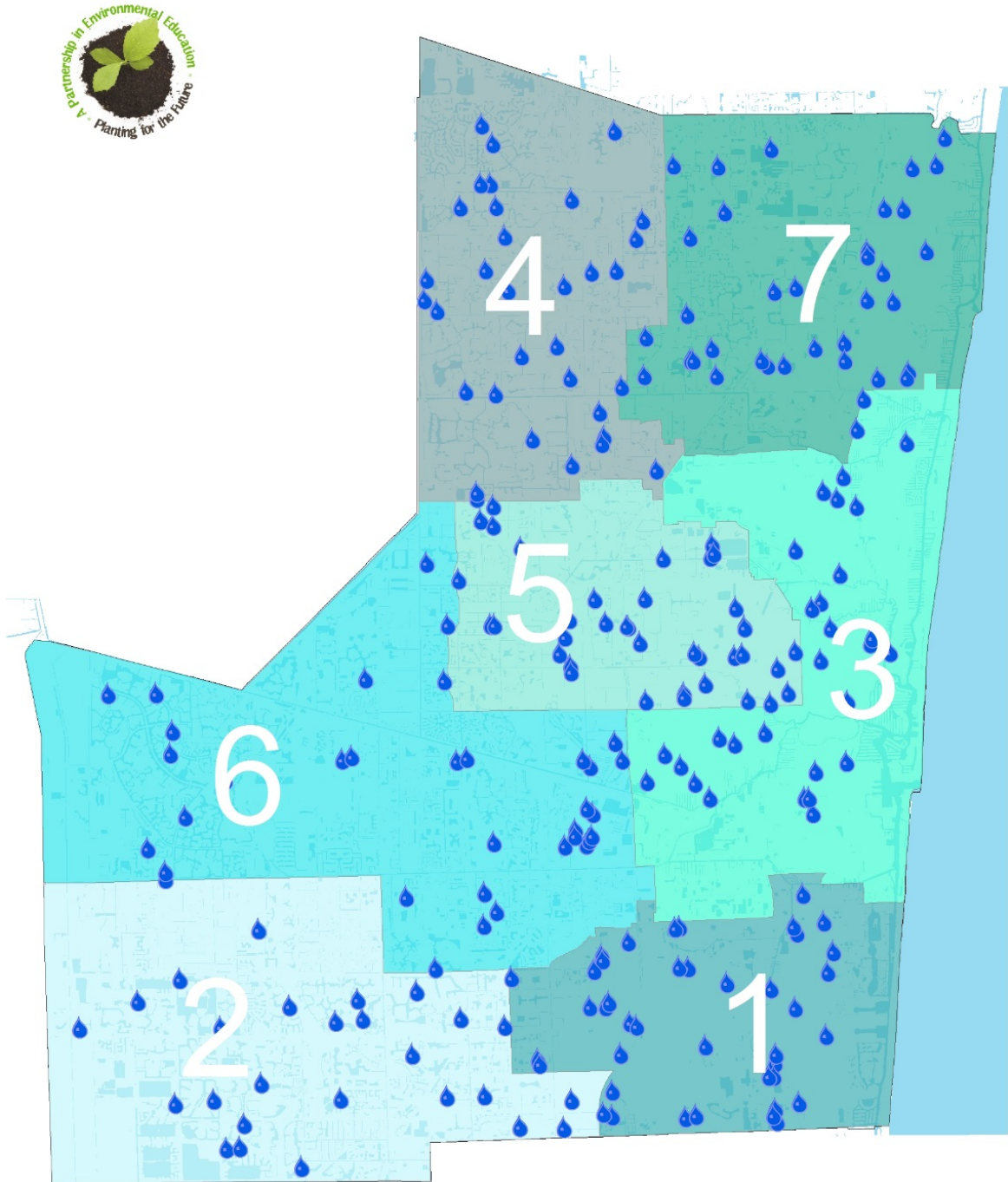




Lauderdale Lakes Middle School

Appendix B – Irrigation Evaluations

Environmental Partnership School Irrigation Evaluations Completed (By School District)



Appendix C – Summary of Activities

School Programs Summary

Reporting Period Totals	Number of Programs	Number of Students Reached
SY 17-18 School Programs (District wide)	236	5,830
Cumulative Totals		
School Programs (District wide)	1853	56,033
Community Outreach, NatureScape Education Days, and Special Events	44	14,379

Teacher Training Summary

Reporting Period Totals	Number of Programs	Teachers Trained
Teacher In-service Training	3	42
Cumulative Totals		
Teacher In-service Training	223	494
Reporting Period Totals	Number of Programs	Teachers Trained
NWF Habitat Steward Training	1	28
Cumulative Totals		
NWF Habitat Steward Training	12	217

Custodial/Facilities Training Summary

Reporting Period Totals	Number of Programs	Custodial/Facilities Staff Trained
Custodial/Facilities Training	3	60
Cumulative Totals		
Custodial/Facilities Training	31	998

NatureScape Certifications Summary

Reporting Period Totals	Number of Certifications
NWF Habitat Certification	38
Cumulative Totals	
Schoolyard Habitat Certifications	216

Irrigation Evaluations Summary

Reporting Period Totals		
Irrigation System Evaluations	35,820,939	GPY saved through irrigation evaluations
	17	Schools receiving irrigation evaluations
	38	Irrigation systems evaluated
	\$149,743	Annual Savings
Cumulative Totals		
Irrigation System Evaluations	417,846,758	GPY saved through irrigation evaluations
	285	Schools receiving irrigation evaluations
	626	Irrigation systems evaluated
	\$923,244	Annual Savings

Some schools have received multiple visits through the years.

Water Audits Summary

Reporting Period Totals		
Water Audits	6,725,609	Potential annual water savings (GPY)
	3	Schools receiving water audits
	\$10,583	Cost of Retrofits/One-time investment
	\$71,667	Identified Potential Annual Savings
Cumulative Totals		
Water Audits	27,150,821	Potential annual water savings (GPY)
	20	Schools receiving water audits
	\$195,150	Cost of Retrofits/One-time investment
	\$558,910	Identified Potential Annual Savings

For more information, please contact:
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