VOLUME 23, NUMBER 2

Environmental Education Alliance of Georgia

FALL 2015

Lucky STEM

2015 Outdoor Learning Symposium Friday, November 13 • Fortson 4-H Center • Hampton

Join us for a fun filled day of hands-on learning! The Outdoor Learning Symposium is an annual fall event intended for formal and non-formal educators from across the state, providing opportunities for networking and sharing lessons, ideas, and encouragement for taking students outside. This year's symposium focuses on integrating STEM (Science, Technology, Engineering, and Math) education and outdoor learning. The Symposium begins at 8:00 am with a morning nature meditation, followed by age-oriented outdoor learning sessions, networking opportunities, a provided lunch, and a "Superstitious Obstacle Course."

"Our 'Lucky STEM' theme, celebrating the Friday the 13th date for this annual event, showcases practical and applied educational techniques implemented in creative and challenging ways," says Jennifer McCoy, Council of Outdoor Learning committee member and co-chair of the EEA Advisory Council. "New this year is the incorporation of several mini-talks into the program. The Council of Outdoor Learning developed these talks in response to common questions, concerns, and challenges teachers have shared over the years. Our goal is for participants to leave ready to take their students outdoors, inspired to try something new, and with resources for their classroom."

Notable About OLS 2015

- Symposium session themes are: Taking STEM Outdoors, Techniques & Strategies for Outdoor Learning, and Creating Sustainable Outdoor Learning Areas.
- Each session is targeted at a distinct age range: elementary school, middle school, high school, fourth grade and higher, and all ages.
- An optional workshop, titled "STEM Under the Stars Make Your Own Star Lab at Fortson 4-H Center," is being offered on Thursday, November 12.
- New this year, the conference will feature "Outdoor Learning Talks." Throughout the day, a team of experienced facilitators will address common concerns and misconceptions related to outdoor learning.
- Purchase a \$15 EEA t-shirt online during registration, and pick it up at the Symposium!

Visit <u>www.eealliance.org/outdoor-learning-symposium</u> for registration and conference information. The cost is \$35 for members and \$60 for non-members (includes one year of EEA membership).

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The beauty of this expansive constructed wetland system draws birders, photographers, runners, dog walkers, painters, and nature enthusiasts from throughout the region and beyond.

An AP Biology class from Butler High School collects water samples from Butler Creek to measure dissolved oxygen.

Facility Spotlight: Phinizy Swamp

by Aaliyah Ross Phinizy Center for Water Sciences EEA Regional Director - East

In the Savannah River floodplain, ten minutes from downtown Augusta, sits a natural jewel in the heart of an urban watershed: Phinizy Swamp Nature Park. Home to the Research and Education campus of the Phinizy Center for Water Sciences, the park also hosts a 360-acre constructed wetland system for tertiary treatment of Augusta's municipal wastewater. The history of wastewater treatment in Augusta is deeply entwined in the Phinizy Center story.

Continued on page 3



Creek Freak member Avonlea King measures phosphate levels in a sample of water from Butler Creek. The Creek Freaks have been monitoring this site since September 2003.



A resident alligator swims at the water's surface. The constructed wetlands provide excellent opportunities to view wildlife.

Kids Club members and Phinizy Center Senior Educator Ruth Mead watch waterfowl in the Equalization Pond. Wastewater leaving the treatment plant spends approximately 3 days in the Equalization Pond before flowing through the constructed wetlands.

Phinizy Swamp... Continued from page 2

In 1996, Augusta's recurring wastewater violations prompted the construction of manmade wetlands as an additional treatment step for the adjacent JB Messerly Water Pollution Control Plant. Ten acres of natural wetlands were impacted by the construction, and natural resources education was proposed as an innovative form of mitigation; thus the Phinizy Center was

founded. Since 1998, the Phinizy Center for Water Sciences has reached 69,000 K-undergraduate students through its education programs. Phinizy Swamp Nature Park opened to the public in 2000 and is an 1100-acre complex encompassing the constructed wetlands as well as natural wetlands and upland habitats.

Butler Creek, which received Augusta's untreated municipal

untreated municipal wastewater before the Messerly plant was built in 1968, runs through the park just upstream of its confluence with the Savannah River. Today, it is the setting for Phinizy's stream ecology field trips, among the most popular programs for middle and high school groups. Students don chest waders to collect biological, chemical, and physical data to assess stream health. Butler Creek is also the adopted site of the Creek Freaks, Phinizy's stream monitoring club for middle and high school students. The

group has been submitting their data to Georgia Adopt-A-Stream since September 2003.

Phinizy's Education Department partners with ESG Operations, Inc., which operates the Messerly plant, to offer wastewater treatment field trips for middle school, high school, and undergraduate students. Along with an in-depth tour of the facility, students are engaged

in a variety of hands-on follow-up activities, such as viewing and identifying microorganisms in samples of activated sludge from the treatment process and exploring effects of land and water use decisions on downstream communities.

Although wastewater treatment is the primary function of the constructed wetlands, they also provide habitat for an impressive array of wildlife including alligators, river otters, fish, turtles, and many bird

species. The wetlands provide a serene setting for Phinizy Center events including monthly guided hikes, full moon hikes, nature photography classes, pet hikes, bird walks, group bike rides, and annual 5K and 10K races.

Check out the Phinizy Center's website to learn more about the Education and Research programs and check out upcoming events: www.phinizycenter.org. See you at the swamp!



A great blue heron spears a fish in one of the constructed wetland cells.



And they're off! Girls from high schools throughout Richmond County compete in a cross-country meet in the constructed wetlands complex.



AP Biology students from Davidson Fine Arts School analyze differences in water quality parameters between Butler Creek and the William Bartram Rain Garden.

THRIVING THROUGH NATURE

Fostering Children's Executive Function Skills

by Chiara D'Amore with Cheryl Charles and Richard Louv The Children & Nature Network

Intended to be of broad interest to adults responsible for the care of children—including parents, grandparents, teachers, educators, social workers and nature advocates—Thriving Through Nature describes why the development of executive function skills is important and how experiences in nature can play a critical and positive role in this process.



The term executive function is generally agreed to refer to an interrelated set of mental processes that allow people to retain and work with information, focus attention, filter out distractions, problem solve, and shift mental gears. Three primary dimensions of executive function are widely understood to be working memory, self-control, and mental flexibility. Housed primarily in the prefrontal cortex, these brain functions are highly interrelated operating in coordination with one another for successful achievement of the executive skills required in a given situation.

The Development of Executive Function

The process of developing executive function is an interplay between brain development and life experience. It begins in infancy, accelerates in early childhood, and continues into early adulthood.

- The years from zero to five are critical. While the brain continues to mature and develop connections well into adulthood, the brain circuits and associated skills that are developed in the earliest years of life provide a critical foundation.
- Secure attachment is fundamental. Cognitive development is closely intertwined with emotional and social development. Therefore consistently responsive, positive interactions between children and their adult caregivers are essential for building healthy brains.
- Executive function skills mature at different stages and at different rates with some abilities reaching their developmental peak in late childhood or adolescence while others mature in early adulthood.

When looking across the body of research on fostering the development of executive function skills, important themes and lessons emerge:

 With knowledge and support, executive functions can be improved by parents and teachers without the need for special tools or equipment.

- Physical activity has a clear and positive effect on cognitive development and executive function.
- The opportunity for free play is an important part of childhood and is important for healthy brain development and executive function skills.
- The more time children spend in less structured activities, the better their self-directed executive function, even when controlling for age, verbal ability, and household income. Conversely, more time in structured activities predicts poorer self-directed executive function.
- Successful executive function programs capture children's interests and tend to reduce stress, foster social bonding, and cultivate joy, pride, and self-confidence.
- Programs that address more executive function components yield wider gains in executive function.
- Access to nature has meaningful, positive impacts on cognitive function, and nature-based activities that afford the opportunity for active, free play are particularly beneficial.

Such research findings demonstrate that less-structured time, such as that often afforded by time in nature, may "uniquely support the development of self-directed control by affording children with additional practice in carrying out goal-directed actions using internal cues and reminders" (Barker et al., 2014).

Continued on page 5



Executive Function... Continued from page 4

Middle Childhood - 7 to 12 years

During middle childhood growth becomes more stable and children become self-conscious as they become increasingly social. The ability of children to have logical thoughts and understand different scenarios greatly increases. Children are increasingly capable of learning, creating and accomplishing numerous new skills and acquiring new knowledge. In order to perceive the world in a structured, coherent way, children create an internal framework by incorporating a whole range of opinions and values, including more fully understanding the need for rules, and how rules help them navigate the world. Bonds with family continue to play a key role in children's social and emotional development, and relationships with peers



increase in significance. It is also during this time that children's geographical ranges expand rapidly, and their focus shifts from the home to the "explorable landscape" (Sobel, 2008). "Play in nature, particularly during the critical period of middle childhood, appears to be an especially important time for developing the capacities for creativity, problem-solving, and emotional and intellectual development" (Kellert, 2002). Between the ages of seven and twelve, children continue to have periods of growth in executive functions. Some specific functions, such as cognitive flexibility, begin to reach maturity (De Luca & Leventer, 2008). Overall, this is the stage during which children have major increases in verbal working memory, goal-directed behavior, self-control, selective attention, strategic planning, and organizational skills (Brocki et al., 2004). It is important for children in this age range to experience increasingly complex activities that foster the cognitive development associated with executive function. Preadolescents' awareness of how to apply executive function skills across multiple contexts is still emerging in this phase.



The following nature-based activities foster executive function development in middle childhood.

- **Physical activities** Making forts, creating small imaginary worlds, hunting and gathering, searching for treasures, following streams and pathways, exploring the landscape, taking care of animals, gardening, and shaping the earth are great activities at this age and enhance planning, follow-through, memory, focus, problem solving and patience.
- **Planning activities** Children can make simple garden plans, choose between seed and seedling types, and mark a calendar with tasks needed to maintain the health of a sensory garden planted with vegetation of diverse colors, textures, scents, and sizes.
- **Music / singing / dance** Listen to a nature-themed musical composition, such as Saint-Saens' *Carnival of the Animals*, identify and imitate nature-like sounds in the music, then go outside and find nature sounds and rhythmic patterns reminiscent or distinct

from the music. This activity engages the senses, improves self-control and focus, and exercises imagination.

• Social activities and games - Encourage children's abilities to foster peer relationships by collaborating to create a temporary outdoor play space—activities which can challenge children to innovate with loose parts, solve problems in groups, and divide tasks to reach a goal. Going on a night hike or campout is a bonding social activity, an opportunity for children to take some responsibility for planning what to bring.

To read this publication in its entirety, go to www.childrenandnature.org/wp-content/uploads/2015/08/CNN ExecutiveFunctionToolkit 8-14 15 final.pdf.

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Let's Talk Trees Tree Planting Best Practices

by Robby Astrove Arabia Mountain Nature Preserve EEA President



Students spreading tree roots by hand to ensure growth and establishment.

TREES ARE THE ANSWER! There's even a bumper sticker to prove it. Trees answer the call to improve our quality of life and provide decades-long services to the planet. These social, environmental, and economic benefits really add up: cleaning air, providing habitat, increasing aesthetics, increasing property values, reducing crime rates, and producing fruits and nuts (yum!). Trees also have intrinsic, emotional, and spiritual values that are truly priceless.

We encourage educators to explore ways to connect the amazing world of trees to your curriculum. But what about going out on a limb and doing something even more powerful? As experiential educators, we know that we learn best by *doing*. Providing students with hands-on experience is the best, and perhaps most memorable, way to build the awareness, knowledge, and ownership that young people can make a difference. Plus, they get dirty and outside...and we need more of that!

While many of us get excited about tree planting around spring and Earth Day, the proper planting window for trees in Georgia is actually October through March, when trees are dormant. That way, when spring arrives, trees are already in the ground and focused on growing roots. This timing minimizes stress to the tree that can result when planting later in spring and summer. Coincidentally, Georgia Arbor Day is the 3rd Friday in February, exactly during planting time!

Here are a few best practices to consider when planting trees:

First, study your site very carefully. Look up, down, and all around. Note the areas of full sun and partial shade and where water collects and flows. Reach out to a community arborist for assistance in the planning process and make sure to select the right tree for the right place.

Next, create partnerships. Partner to raise funds for the trees and to seek in-kind donations for tools, mulch, water buckets, and gloves. That's all you really need!

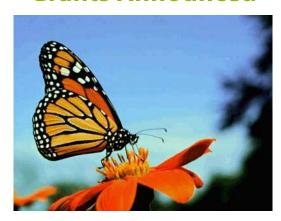
Lastly, attend the 2015 Outdoor Learning Symposium, where I'll be leading a session on starting a school fruit tree orchard, which will cover many of these best practices and more. We'll also have rain barrels for sale to keep your trees watered. In keeping with experiential education practice, learning will not be limited to just the indoors! Join us at OLS to plant trees, learn proper planting technique, and which varieties and species do best in your area.

Questions or comments? Email Robby Astrove at president@eealliance.org.

Your tree planting checklist!

- □ **Right tree, right place.** Make sure your site is matched to an appropriate tree. Consider height, width, soil conditions, moisture, and sun.
- **Million dollar hole for a dollar tree.** Dig a hole twice as wide as the tree's root ball. Spend lots of time and energy on getting a big, spacious hole prepared.
- □ **Always plant native.** Go to a native nursery and avoid the big box stores. Select drought tolerant and hardy varieties appropriate for the plant community in which you are planting.
- **Mulch, mulch, mulch.** Apply mulch 2-3 times a year. Get a tree service company to drop a load and it's usually free.
- **Water.** Water trees March-October with 10 gallons per week poured all at once. Get a rain barrel to help with this!
- □ **Team approach.** Partner with other educators, parents, and community members to assist with tree care, education activities, special projects, and providing the supplies you need for a successful planting.

Recipients of Pollinator Grants Announced



Eleven \$1,000 Grants Awarded to Organizations for the Creation or Enhancement of Pollinator Habitat

Congratulations to the recipients of the 2015-17 Monarchs Across Georgia Pollinator Habitat Grants for the Rosalynn Carter Butterfly Trail!

- Autrey Mill Nature Preserve and Heritage Center, Johns Creek
- Blue Heron Nature Preserve, Atlanta
- Briarlake Elementary School, Decatur
- Chalker Elementary School, Kennesaw
- Friends of Springbrook Park, Decatur
- Keep Marietta Beautiful, Marietta
- Oconee County Middle School, Watkinsville
- Peachtree Charter Middle School, Dunwoody
- · Richmond Hill Montessori Preschool, Richmond Hill
- The Paideia School, Atlanta
- W.R. Coile Middle School, Athens

Each of these organizations will receive \$1,000 to either create or enhance a garden for butterflies, bees, hummingbirds, and other pollinators. By providing all of the habitat components – host and nectar plants in three seasons, water source, basking areas, and shelter – and practicing pollinator-friendly conservation techniques, each completed habitat will qualify for and be awarded the Monarchs Across Georgia Pollinator Habitat Certification. Projects will also fulfill specific requirements to join the Rosalynn Carter Butterfly Trail.

Grant monies are derived from the profits made on Monarchs Across Georgia's plant sales and from the financial support of U.S. Fish & Wildlife Service Southeast Region. We appreciate the technical advice and funds provided through the Partners for Fish and Wildlife program.

To learn more about how you can create a haven for pollinators, visit our website:

www.eealliance.org/pollinator-habitat-certification-program.

Now Accepting Applications! \$1000 Pollinator Habitat Grants

News Flash! A new round of \$1,000 Pollinator Habitat Grants is now available!

The application deadline is **November 15, 2015**. Visit <u>www.eealliance.org/pollinator-habitat-grant</u> for more details and to apply.

These grants are available to schools, businesses, and organizations that plan to create or enhance an existing pollinator garden. Once complete, habitats will fulfill the specific requirements of the Monarchs Across Georgia Pollinator Habitat Certification and the Rosalynn Carter Butterfly Trail.

Monarchs Across Georgia Pollinator Habitat grants must be used on a site within the state of Georgia and can be used to fund the following:

- Plants, seeds, soil amendments, mulch, hard-scape (raised beds, trellises, basking or puddling features), and irrigation equipment
- Instructional materials directly used for and related to the project, i.e., seed-starting/growing system, hand lenses, field guides, children's books, curriculum guides
- Signage, brochures, or materials directly related to the project's educational component
- Professional development directly related to the utilization of pollinator habitat (limited to \$250.00)
- Registration and certification as a <u>Monarch Waystation</u> through Monarch Watch

A template in word format and two excel forms (budget and timeline of tasks) are available on the grant page. Applications must be submitted by November 15, 2015, and applicants will be notified by December 31. Funds will be distributed in January 2016. All funds must be expended according to the proposed plan with the final report due June 15, 2016. The application for Pollinator Habitat Certification must be submitted and the Rosalynn Carter Butterfly Trail joined before the final report deadline.

Questions? Contact maggrant@eealliance.org.



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EEA is now on Twitter! You can find us by searching for Georgia EEA on Twitter, or by going straight to our Twitter page, www.twitter.com/Georgia EEA. Please follow us to stay up to date with the latest news relevant to you about grants, professional development opportunities, and upcoming conferences. You can also contact us much more quickly now by simply tweeting at us using our twitter handle, @Georgia EEA.

We will be using the #OLS15 for the upcoming Outdoor Learning Symposium on November 13th and will be live tweeting some of the conference sessions. Follow us to stay up to date with the sessions you will miss, and use the #OLS15 to share your experiences from the conference!

2016 ATEEG Courses

Advanced Training for Environmental Education in Georgia (ATEEG) is a nationally accredited, professional certification program for formal and non-formal educators based on the North American Association for Environmental Education (NAAEE) Guidelines for Excellence. This certification program is designed to expand your knowledge of instructional techniques, provide great networking opportunities, and teach program evaluation strategies.

Core Course 1 • January 22-24, 2016 • "Foundations of Environmental Education", the first of three courses an educator can take to receive a Certificate in Environmental Education, focuses on the concepts of environmental literacy, the history of environmental education, and environmental education research.

Tip from ATEEG

Learn the basics of ATEEG, hear from current participants and graduates as they share their experiences and Independent Study Projects, and ask any and all questions you have during the ATEEG session at the Outdoor Learning Symposium on Friday, November 13th. We hope to see you there.

Each of these courses will be held at Charlie Elliott Wildlife Center in Mansfield, GA, beginning at 1:00 PM on Friday and adjourning at noon on Sunday. The registration fee is \$275 per course for EEA members and \$300 for non-members. Course fees include all materials, supplies, and meals. At this time there is a \$75 scholarship available to each person upon completion of a Core Course.

For more information please contact the ATEEG Program Administrator at <u>ATEEG@eealliance.org</u> or visit our website at <u>www.eealliance.org/ateeg</u>.

Core Course 2 • February 26-28, 2016 • "Fostering Learning" focuses on the concepts of instructional methods, environmental education materials and resources, best practices, and curriculum planning.

Core Course 3 • June 17-19, 2016 • "Evaluation and Assessment" increases participant's skills and knowledge associated with the program evaluation process that includes identifying outcomes, data collection methods, and data analysis and interpretation.



ATEEG's newest cohort, Cohort J, attended CC1 in June 2015.

News from Georgia's Regions

By Land and by Sea

by Melissa Martin Flint RiverQuarium EEA Regional Director - South

Lee County Code Enforcement and Keep Albany-Dougherty Beautiful joined forces to bring Rivers Alive to southwest Georgia in October 2014. Volunteers walked the banks of the Flint River in downtown Albany or paddled some of the most picturesque parts of the Muckalee and Kinchafoonee creeks by canoe or kayak, picking up trash along the way. A total of 27 miles was covered with this effort. Volunteers assisting with the event included Chehaw's Junior Zookeepers, Lee County High School Junior R.O.T.C. Cadets, and Leesburg Law Enforcement Explorers civic group, to name a few. Other players that contributed canoes for the event included Flint RiverQuarium, The Jones Ecological Research Center, Flint Riverkeeper, Chehaw, and Darton College. Once the cleanup finished, festivities began with animal encounters, drawings for prizes, and a tasty barbeque lunch for the masses. You can't have a cleanup without food! All in all, 220 folks collected 13,000 pounds of trash and debris by water and 2,500 pounds by land.



Lee County volunteers.

We are looking forward to another combined event in October 2016 to take full advantage of lower water levels in the creeks thanks to Georgia Power. This provides easy access for items typically too deep to grab by hand.

Keep-Albany Dougherty Beautiful will be hosting a cleanup this year on October 24, 2015 from 9-11am. Participants can canoe, kayak, or walk. Contact Judy Bowles (see below) for more information.

If you are interested in participating in a future Rivers Alive event in the Albany/Dougherty or Lee County areas, contact Judy Bowles at 229-430-5257, <u>jbowles@dougherty.ga.us</u> or Ben Roberts at 229-759-6000, <u>ben.roberts@lee.ga.us</u>.

You're Invited!

Water, Wings & Wildlife Festival Flint RiverQuarium Environmental Education Center Saturday, September 26, 2015, 10am – 5pm

Make some tracks and join the Flint RiverQuarium for a celebration of all creatures great and small. Event highlights include:

- Animal Adaptations by Jekyll Island Sea Turtle Center
- Mobile Butterfly House
- Wild Wings Bird of Prey Show by Winged Ambassadors
- Discover SCUBA by Adventure Dive Center
- Fly Fishing Demonstrations by Orvis endorsed guide Todd Rogers
- Birdhouse Nest Box Building by Home Depot
- Alien Waters Planetarium Show at Thronateeska Heritage Center
- Hunting/Fishing Simulator and Archery Course by Georgia Department of Natural Resources
- Bugs, Bugs, and More Bugs display by UGA Tifton Entomology Department
- Lots more activities including animal encounters, dive shows, alligator feedings, Imagination Theater Movies, and other family friendly activities and vendors

For more detailed information, visit our website at www.flintriverquarium.com, or call 229-639-2650.





Shop at Kroger and Amazon, Earn Money for EEA!

You can now support EEA by shopping at Kroger and on Amazon. Help EEA earn up to \$8000 per quarter by signing up for both of these programs below:

Register your Kroger Plus Card Select EEA as your charitable organization on AmazonSmile





Find us on Facebook and Twitter for pictures, program updates, upcoming events, articles of interest, grant opportunities, and more!

Call for Proposals Now Open for the 2016 EEA Annual Conference

The EEA Conference Committee would like to invite you to submit a session proposal for the 2016 Annual Conference, taking place at the Environmental & Heritage Center in Buford, Georgia on March 4-5, 2016. This beautiful LEED Gold certified facility features hands-on science, cultural and natural history exhibits, nature trails, and outdoor classrooms.

Our conference theme is **Growing Green with the Next Generation**. This year's conference will explore tools and techniques for building and sustaining environmental education programs that are impactful, innovative, and relevant. We ask that presentation proposals be submitted under one of four thematic strands that characterize this year's conference. Each strand explores a different aspect of the work we do to advance environmental education.

Supporting Our Programs: Fundraising, grant writing, budgeting, program evaluation, staff and volunteer management, working with boards, collaboration and partnerships, coalition building

Extending Our Reach: Distance learning, training other educators, developing curriculum/toolkits, reaching out to underserved audiences, creating new learning spaces, bringing the outdoors in

Keeping Current, Looking Ahead: Next Generation Science Standards, emerging issues, integrating technology, cultivating future environmental leaders

Spotlighting Our Success: Exemplary programs, EE best practices, model partnerships, innovative EE methods & tools

We welcome and encourage you to present a session and share your expertise and experiences with Georgia's environmental educators. Proposals must be submitted for consideration by **November 25, 2015**. To submit your proposal, please visit our website at www.eealliance.org/annual-conference.

Interested in being a part of the 2016 EEA Conference Planning Committee? For more information or to join, please send an email to **conference@eealliance.org**.

Save the Date!

2016 EEA Annual Conference "Growing Green with the Next Generation" March 4-5, 2016 Environmental & Heritage Center, Buford

We'd love to hear from you!

For comments and article suggestions or submissions, please email news@eealliance.org.

Environmental Education Alliance of Georgia

P.O. Box 768081 Roswell, GA 30076 www.EEAlliance.org The Environmental Education Alliance of Georgia's mission is to promote communication and enrichment among professionals in the field of environmental education through partnerships, initiatives, and access to knowledge and experiences.

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