Examples of Environmental Education Programs in North Carolina that Highlight Partnerships Between Schools and Informal Science Organizations

A Time for Science Nature and Learning Center, Grifton
A Time for Science Nature and Learning Center in Greenville, North Carolina partnered with the Lenoir County School System on six-week STEM camp in which the students visited the center the morning and went back to the school in the afternoon. All activities were STEM activities and were planned by A Time for Science, and allowed the students to do fun, outdoor hands-on learning. A Time for Science plans to do a similar camp this summer with Pitt County Schools and are currently seeking funding. http://stemcamps.lcpsnc.org

The North Carolina Arboretum, Asheville
Project EXPLORE (Experiences Promoting Learning Outdoors for Research and Education), the Arboretum’s citizen science-driven school outreach initiative, has reached over 98 teachers in 22 counties and 4500 students over the past three years by engaging in environmental monitoring at the student’s own schoolyards. Teachers conduct weekly field observations with their students on one of three projects: Tree Phenology, Squirrel Population Density or Bird Population Occurrence. The Arboretum’s professional environmental educators provide modeling of outdoor education techniques for teachers as they guide students through an introductory lesson at the beginning of the school year, offer support to teachers as needed throughout the school year, and lead a discussion and wrap-up activity incorporating the N.C. Standard Course of Study with students at year’s end. Teachers also receive a small grant award to purchase materials and borrow field equipment for the school year. At year’s end, each class presents their data at the Arboretum’s annual Mountain Science Expo, an official expo of the N.C. Science Festival. Schools may also apply for a schoolyard enhancement grant program made possible through the generosity of Thermo Fisher Scientific. Project EXPLORE is a free donation-funded initiative sponsored by The North Carolina Arboretum Society. http://67.23.15.90/education/citizen-science/project-explore

Allison Woods Outdoor Learning Center, Statesville
Allison Woods is a historic site that is looking toward the future of STEM learning and environmental education. Their Turtle Dog Program offers a hands-on experiential opportunity for students to participate in the preservation and conservation of the North Carolina State Reptile, the Eastern Box Turtle. Using resident dogs specifically trained to locate and retrieve turtles, students help collect and document data on each turtle during field studies before releasing the turtle to its original location. These findings are then shared with the North Carolina HERPS Project monitored by the University of North Carolina at Greensboro. Allison Woods also has an innovative Lake Portal Program, which uses their own freshwater research vessel on their lake. Activities include net collection, observation of resident lake organisms, and an underwater camera to see plant and animal life that inhabits the bottom of the lake and the areas in between. Once students disembark, microscopes and a variety of testing equipment are used to view the microorganisms and soil and water samples are collected and used to document water quality. http://www.allisonwoodsoutdoorlearningcenter.com
North Carolina Coastal Reserve, Beaufort
Each year, the North Carolina Coastal Reserve educates 700+ school-aged children on the Rachel Carson Reserve in Beaufort, North Carolina, about the importance of estuaries. Each trip is adapted to the class’s grade level so standards are met during instruction time. http://www.nccoastalreserve.net/web/crp/school/group-field-trips

Airlie Gardens, Wilmington
Beautiful and historic, Wilmington’s Airlie Gardens also provides essential STEM education to students in New Hanover county and beyond. It is uniquely located near urban Wilmington on Bradley Creek near the Wrightsville Beach causeway, which makes it an ideal learning laboratory for environmental education. For example, Airlie Gardens provides an in-depth, hands-on, three-hour field trip for eighth graders in New Hanover County Schools that improves their skills with biological, physical and chemical testing of water. They increase their environmental literacy by understanding how their individual actions impact their watersheds, and how land use planning can effect water quality. Because of Airlie’s diverse ecosystems, students are able to observe both fresh and saltwater habitats and the plants and animals that live in them. http://airliegardens.org/education

The N.C. Museum of Natural Sciences, Raleigh
The N.C. Museum of Natural Sciences UTOTES and Using Your School Grounds programs work at school sites with teachers to showcase the natural resources that are available on their school grounds for teaching. UTOTES is a series of six workshops over the course of the school year, including the installation of a small habitat feature to enhance the value of the grounds for wildlife and learning. Using Your School Grounds is a one-time teacher workshop with a similar purpose. Creating Schoolyard Habitats is a two-session series including teacher professional development and the installation of a small habitat feature. Funding would allow more school systems to participate in these programs. http://naturalsciences.org/learn/workshops-at-your-school

The North Carolina Aquarium at Pine Knoll Shores
The N.C. Aquarium at Pine Knoll Shores had a partnership with Carteret County Schools and Morehead Elementary School to implement programs in 4th grade classrooms. One program engages students in healthy environmental habits and conservation behaviors at home and at school over a month-long curriculum. Aquarium educators facilitate weekly programs in the classroom and the program culminates with a visit to the Aquarium. This program was discontinued because of the lack of funding. http://www.ncaquariums.com/wp-content/uploads/2009/02/nca-pks-outreach-programs-ncscos2.pdf

Blue Jay County Park in Raleigh
Blue Jay County Park in Raleigh, North Carolina offers a variety of programs and field trips for schools. The staff-led programs include nature hikes, pond studies, insect investigations and are correlated to the state’s Standard Course of Study. In the past the Wake County Public School System contributed to funding for 5th graders from the school system to spend one night at the park which included two programs for the whole 5th grade class. Due to lack of funding this assistance was discontinued and the rate of participation for overnight field trips by Wake County Public Schools declined. Grant funding could allow more schools in the system to participate in these programs. http://www.wakegov.com/parks/bluejay/school/Pages/default.aspx
Muddy Sneakers, Brevard
The Muddy Sneakers program in Western North Carolina currently works with 21 elementary schools across six counties. Each school commits to a minimum of six all-day Field Expeditions for their 5th grade students. The Brevard-based program works with fifth-graders to teach the state’s science curriculum experientially. Muddy Sneakers utilizes protected lands as expedition site to introduce students to wonders of the natural world through teaching all science curriculum, not just environmental science, using experiential methods in an outdoor classroom setting. Along the way, students are learning respect, gratefulness, and compassion for themselves, their classmates, and the natural world as well as meeting requirements in the standard course of study. A legislative-funded expansion that begins in January 2017 and based in Salisbury North Carolina will serve five Piedmont Counties expanding the program to 1,000 more students in the Piedmont. The expansion will also add 300 students in underserved areas of Western North Carolina including Buncombe, Mitchell and Rutherford counties. http://muddysneakers.org

Prairie Ridge Ecostation, North Carolina Museum of Natural Sciences, Raleigh
Dragonfly Detectives is a program offered by Prairie Ridge Ecostation, a part of the North Carolina Museum of Natural Sciences. Dragonfly Detectives is an inquiry-based, afterschool science discovery program for North Carolina students grades 4-8. Students travel to N.C. State Parks throughout the state one afternoon a week for six weeks to study dragonflies in the field. Students learn how to do real science while learning about aquatic systems, animal migrations, dragonfly identification, careers in science, and other topics and present their findings to the public. Transportation to and from the park, snacks, and a toolkit for the students to keep are provided. Grant funding would extend the program beyond the end of the current grant cycle – the program is in year 2 of 3 right now, but needs funding to continue after the third year. https://dragonflydetectives.wordpress.com

The Summit Environmental Education Center at Haw River State Park, Browns Summit
The Summit Environmental Education Center (SEEC) is an outdoor environmental education center specializing in day, overnight and 2-night/3-day field trips for school groups of all ages. For the calendar years of 2015 and 2016, SEEC facilitated 4,297 programs with 8,295 participants. All courses and activities are facilitated by Environmental Education Instructors with four-year degrees and with a 1 to 15 teacher student ratio. These courses are designed to meet or exceed state and national standards for curriculum for Science, Social Studies and Healthful Living. http://www.ncparks.gov/haw-river-state-park/education

Environmental Education in North Carolina State Parks

Kids in Parks Track Trails
The Kids in Parks program, coordinated by the Blue Ridge Parkway Foundation, has created a network of self-guided hiking trails (and other types of trails: disc golf, paddling, GPS, citizen science, biking, etc.) designed to get kids and families unplugged, outdoors, and reconnected to nature through fun activities that foster a meaningful connection to our parks and public lands. The program installs educational self-guided brochures and signs on a site’s preexisting trail that engages kids and families
in the resources that make that site unique. There are currently 81 TRACK Trails in N.C., with 30 of them being in partnership with North Carolina State Parks. [http://kidsinparks.com](http://kidsinparks.com)

**College and University-Sponsored Programs that Serve Students and/or Teachers**

**MYLES of Science - Montreat College**
MYLES provides exciting field-based science expeditions for high school students in the Great Smoky Mountains National Park (GSMNP) and Mt. Mitchell. Since 2003, Montreat College has provided a field-based intensive environmental training and research program to high school students from all over the state of North Carolina through two different programs: CLIMBE and MYLES. Montreat College offers multi-day expeditionary science trips in partnership with the National Park Service in the GSMNP. During the 6-day, expeditionary science experience, students explore a variety of ecosystems and collect important scientific data along the way. Students work closely with professional scientists to learn more about field-based research. GSMNP is the most visited National Park in the United States and it has some of the broadest diversity of flora and fauna of any place on earth and Mt. Mitchell is the tallest mountain east of the Mississippi. The program uses these unique ecosystems and educates students about the environments and the effects of acid rain and other environmental stressors on these special places. [http://myles.montreat.edu](http://myles.montreat.edu)

**Project Learning Tree (PLT) – NC State University - Extension Forestry**
Project Learning Tree® (PLT) is one example of an award-winning environmental education program designed for teachers from preschool through grade 12. PLT provides educators with professional development, supplementary curriculum materials, and resources to integrate environmental education into lesson plans for all grades and subject areas and to use the outdoors to engage students in learning about the world around them. The curriculum builds critical thinking skills, problem solving, and team-building. GreenSchools, PLT’s service-learning program, inspires students to apply STEM (science, technology, engineering, and math) to create greener and healthier schools by reducing energy and water use, improving their school site, recycling, and other projects that also save schools money. [https://forestry.ces.ncsu.edu/ncplt](https://forestry.ces.ncsu.edu/ncplt)

**EGRET Fellows Program – UNC Chapel Hill Institute for the Environment**
The Exploring the Geographical Region and Ecosystems of the Tar-Pamlico Watershed Program (EGRET Program) engages 4th and 5th grade teachers in hands-on, inquiry-based activities integrated across content areas that will prepare them to incorporate current, place-based content into their classrooms. The program supports participating teachers in using watershed-focused lessons aligned with state standards with students and establish relationships with regional environmental education centers that can provide field trip and guest speaker opportunities. EGRET Fellows interact with scientists, historians and non-formal environmental educators as they study the unique plant and animal populations in the river and sound, impacts on the Tar-Pamlico river and Pamlico sound ecosystems, and how geography and availability of natural resources affects settlement and land use in the region. The EGRET Program is also designed to address teacher confidence in using the outdoors and local natural resources to teach required concepts, including creating and using outdoor classrooms on school grounds. [http://ie.unc.edu/egret](http://ie.unc.edu/egret)
The HERP Project – UNC Greensboro
Herpetology Education in Rural Places and Spaces (The HERP Project) consists of four threads (Celebrations, Cyberhub, Herpetology Research Experiences, and Studies) to support educational, conservation and field ecology experiences related to herpetology. The Herpetological Research Experiences (HREs) was developed to expose participants to ecological fieldwork by engaging in a variety of field science projects related to local reptile and amphibian species. HREs began with summer field research experiences for rising 9th through 12th graders. These residential experiences transform participants’ understanding and appreciation of the natural sciences as they collected data on specific reptiles, amphibians and their habitats. After the summer program, HRE participants had the opportunity to engage in a variety of field trip experiences during the academic year. Scientific information gathered during HREs was submitted to databases utilized by citizen scientists as well as professional herpetologists. Students also contributed by sharing what they learned at informal educational events. Faculty and doctoral students from UNCG work with local public K-12 schools to enhance environmental education by bringing local native animals to the classroom, by designing outdoor activities across the curriculum (nature scavenger hunts, school site geocaching experiences, birding, installing miniponds, etc.), and by offering summer institutes and workshops that offer both students and K-12 teachers opportunities to engage in citizen science projects focused on the natural world. [https://theherpproject.uncg.edu](https://theherpproject.uncg.edu)

Climate LEAP – UNC Chapel Hill Institute for the Environment
Since 2009, the Climate Leadership and Energy Awareness Program (Climate LEAP) has engaged approximately 200 rising 9th-12th grade students from Durham and Orange counties. During this program, students engage with scientists and educators and conduct hands-on and minds-on science and mathematics activities to examine the interconnected topics of climate and energy as well as the current and emerging solutions designed to move us toward a low carbon future. The program is administered by the UNC Institute for the Environment with support from the Burroughs Wellcome Fund. Climate LEAP is conducted in partnership with the UNC Department of Physics and Astronomy. [http://ie.unc.edu/climateleap](http://ie.unc.edu/climateleap)

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