



Natural Resources Conservation Academy's



Conservation Ambassador Program



CIRCA Matching Funds

Final Report

April 3, 2018

Partially sponsored by a grant from the Connecticut Institute for Resilience and Climate Adaptation. More information about CIRCA can be found at circa.uconn.edu.





Executive Summary

The Natural Resources Conservation Academy's Conservation Ambassador Program (CAP) advanced the development of resilience and sustainability of Connecticut coastal and inland communities that are vulnerable to the impacts of climate change by:

1. Educating high school students from throughout the state on climate change effects in Connecticut
2. Engaging them in solutions to climate change issues through student-led conservation projects (i.e. fostering a generation of "informed advocates" of environmental stewardship, which is vital to work towards solutions of resiliency and sustainability).

As a result, 24 students from 23 towns conducted 21 community conservation projects statewide. Collectively, the CAP conservation projects undertaken addressed myriad issues related to climate change in both inland and coastal CT communities, as well as directly improve climate change literacy in students' communities statewide.

Project Motivation

With more than 23 million people living within 50 miles of the Long Island Sound (EPA Long Island Sound Study 2015), Connecticut's coastal communities have been altered for centuries (Weigold 2004). Today, climate change adds another layer of impact with warmer air and water temperatures, accelerating sea level rise, and more intense precipitation events (Frumhoff et al. 2007). The New London County coast comprises priority environments identified by the Environmental Protection Agency's Long Island Sound Study (EPA Long Island Sound Study 2015), including beaches and dunes, estuarine embayments, coastal forests, coastal grasslands and freshwater wetlands. Each of these habitat types have numerous management questions and concerns, and are threatened by changing environmental conditions.

Engaging students and community members in natural resource sciences and helping them develop critical thinking and problem-solving skills is vital to the long-term conservation of coastal environments. Nevertheless, a decline in trained science students in the U.S. persists, with high school students performing worse now than they did only a decade ago (Moore 2001; National Center for Educational Statistics 2006). As a result, a serious shortage of scientifically informed citizens who feel capable of tackling these emerging environmental issues exists. In urban areas, students' sustained interest in science is closely associated with how they envision science as relevant to their future (Basu and Calabrese Barton 2007).

References

- Basu, S.J. & Calabrese Barton, A. 2007. Developing a sustained interest in science among urban minority youth, *Journal of Research in Science Teaching*, 44, 466–489.
- EPA Long Island Sound Study. 2015. <<http://longislandsoundstudy.net/>> Accessed Oct 15, 2015.
- Frumhoff, P.C., McCarthy, J.J., Melillo, J.M., Moser, S.C. & Wuebbles, D. J. 2007. Confronting climate change in the U.S. Northeast: science, impacts, and solutions. Synthesis Report of the Northeast Climate Impacts Assessment (NECIA), Union of Concerned Scientists, Cambridge, MA.
- Moore, J.W. 2001. Before it's too late, *Journal of Chemical Education*, 77, 1535–1536.
- National Center for Educational Statistics. 2006. The nation's report card, science 2005: assessment of student performance in grades 4, 8, and 12. National Center for Education Statistics, Washington, DC.
- Weigold, M.E. 2004. *Long Island Sound: a history of its people, places and environment*. New York University Press, New York, NY.



Project Description

The Natural Resources Conservation Academy's Conservation Ambassador Program (CAP; <http://nrca.uconn.edu/students/index.htm>) mission is to provide transformative and authentic learning opportunities to diverse groups of high school students; stimulating critical thinking, creativity, decision-making, and appreciation of science application and nature while contributing to local environmental solutions. By igniting student interest in science and the environment, developing young scientists, and tackling environmental issues relevant to a climate changing Connecticut (CT), CAP fosters the next generation of "informed advocates" of land stewardship as well as directly contributes to improving the resiliency of CT ecosystems.

To achieve our mission each year, 24 high school students from diverse backgrounds participate in CAP, which will provide immersive scientific and professional development, generating real conservation results that will benefit CT communities and environments. The CAP experience consists of two fundamentally linked parts: a weeklong intensive field experience at UConn and a 10-month individualized, community-based conservation project.

The CAP field experience immerses students in a range of natural resource, conservation, and climate change topics taught by UConn professors and external environmental scientists. The 2,100 acre UConn Forest serves as a classroom where students learn about a range of topics: 1) geospatial technology, 2) freshwater systems and green infrastructure, 3) forests and soils, and 4) fish and wildlife conservation. Applying knowledge to real world problems and integrating cutting-edge geospatial technology is emphasized, promoting invaluable skills used by professionals to help inform conservation and land use decisions.

Students subsequently apply their newly acquired knowledge to individual conservation projects in their own community. Each CAP student will undertake a conservation project, collectively addressing local environmental issues throughout the state under the guidance of local conservation groups and researchers and UConn faculty members. CAP student conservation projects are tailored to the individual students' interests and the local communities' needs (see <http://nrca.uconn.edu/students/project.htm>).

Advancing CIRCA Priority Areas

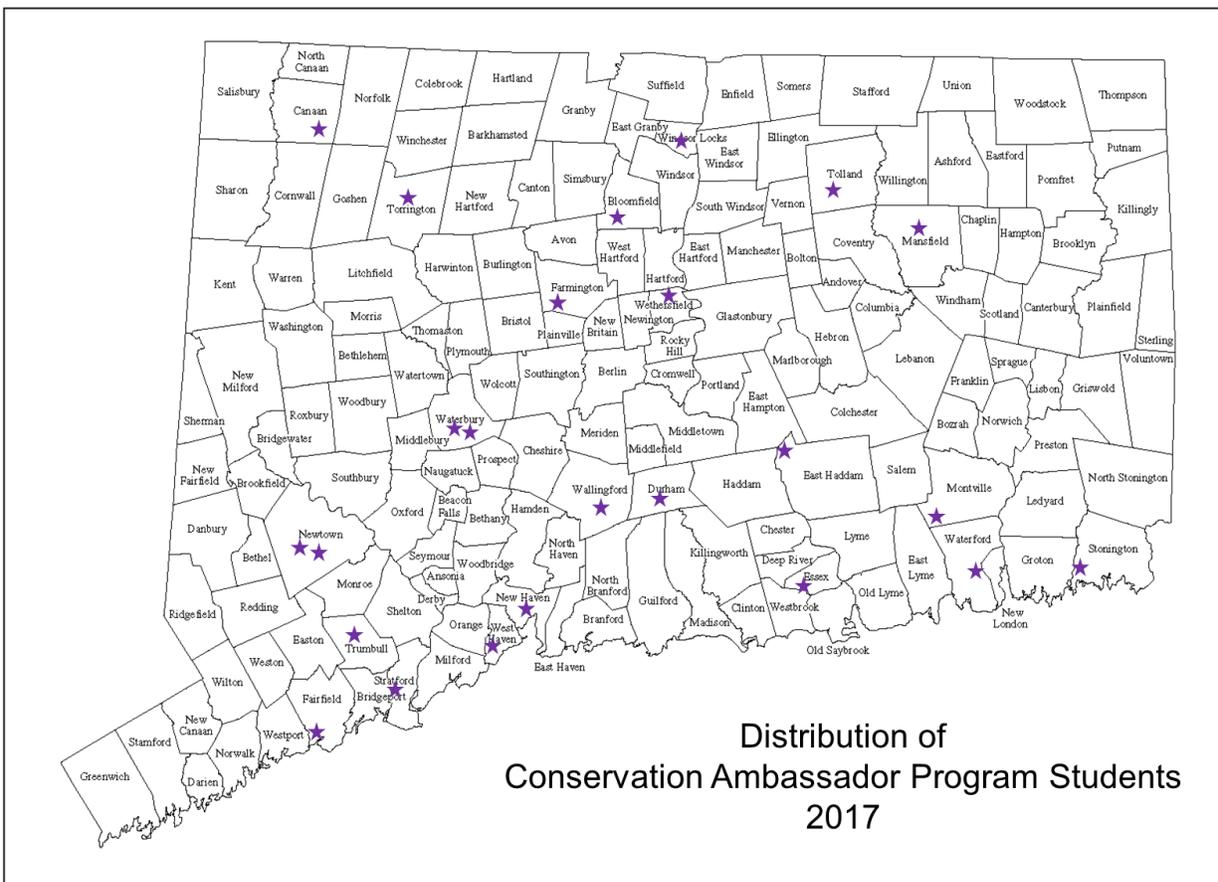
CAP helped advance three of the six CIRCA priority areas:

1. Create a climate-literate public that understands its vulnerabilities to a changing climate and which uses that knowledge to make scientifically informed, environmentally sound decisions;
 - We trained and fostered 24 teen conservation leaders in 23 towns.
 - 8 CAP student projects included an outreach component in which they educated their community on environmental topics related to resiliency and sustainability.

2. Foster resilient actions and sustainable communities – particularly along the Connecticut coastline and inland waterways – that can adapt to the impacts and hazards of climate change;
 - 21 student-led conservation projects were completed throughout the state, empowering this cohort of young Conservation Ambassadors with the ability to solve local environmental issues.
3. Undertake or oversee pilot projects designed to improve resilience and sustainability of the natural and built environment along Connecticut’s coast and inland waterways.
 - 21 student-led conservation projects were completed throughout the state, empowering this cohort of young Conservation Ambassadors with the ability to solve local environmental issues.

Project Outcomes

During the CIRCA funding period, 24 high school students participated in the Conservation Ambassador Program, representing 23 Connecticut towns.





Each student attended the Field Experience, July 16-22, 2017, and fully engaged in hands-on environmental science and natural resources programming.



Using the skills they learned at the field experience, CAP students returned to their own communities to carry out a conservation project that addressed real issues in their own communities. We partnered with the following organizations that provided excellent mentorship support to our CAP students:

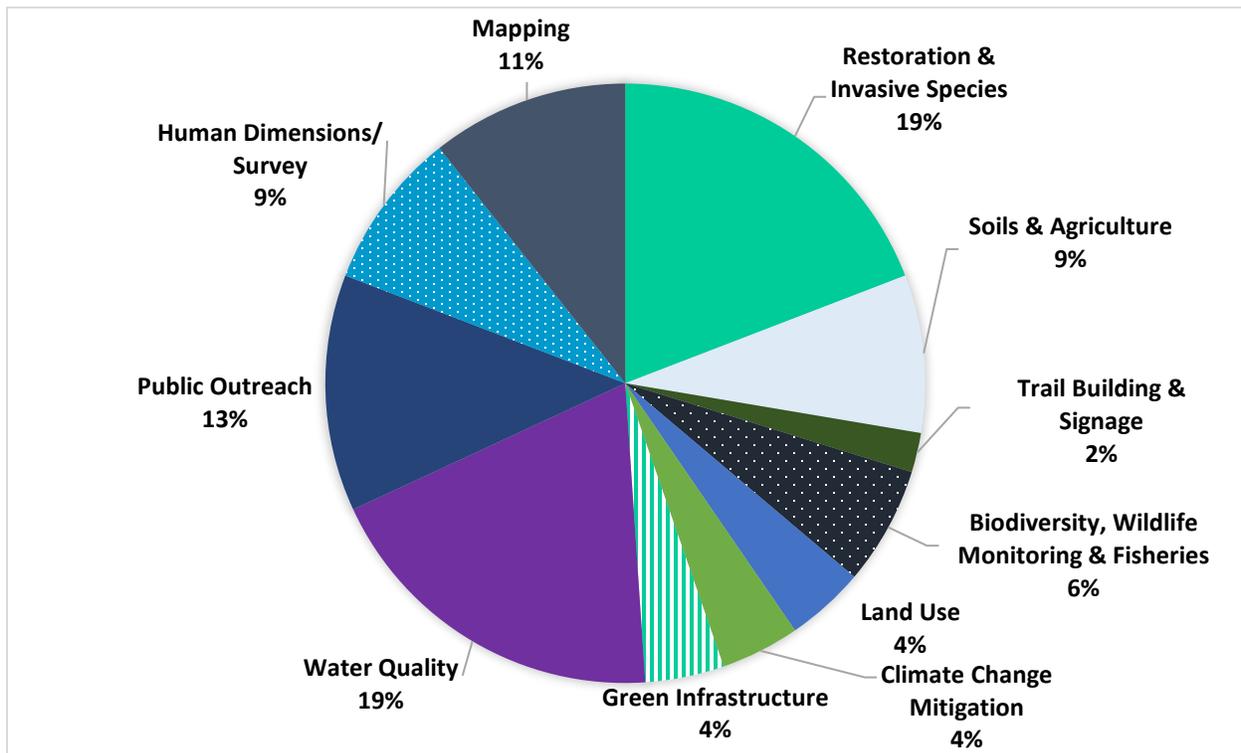
Community Partners	
Aris Stalis Land Studios, Inc.	Green Farms Academy
Beardsley Zoo	Joshua's Trust
Bent of the River Audubon Center	Mystic Aquarium
City of Bloomfield	New London Science and Technology Magnet
City of New Haven	Regional School District 13
Congamond Lake Management Commission	Torrington High School
Crosby High School	Trout Unlimited, Inc.
Eastern Connecticut Conservation District	UConn Ecology and Evolutionary Biology
Eleanor Buck Wolf Nature Center	United Illuminating
Essex Land Trust	Wallingford Conservation Commission
Farmington River Watershed Association	



Each student’s project made an impact on their own communities in unique and distinct ways. Below are the project titles:

CAP Student	ProjectTitle	Project Location (CT)
Hannah	Furthering the Education of Conservation	Bridgeport
Garret	Removal of Invasive Plant Species from John Lyman Elementary School Grounds	Middlefield
Maggie	Nurturing in Nature: Exploring Kids to Explore the Outdoors	Mansfield
Beatrice	Assessing Health of Filley Pond Using Biotic and Chemical indicators	Bloomfield
TJ	Water Pollution and the Effects on Water Ecosystems	Torrington
Camryn	Developing School Composting Systems	Tolland
Krissy	The Role of Pollinator Plants in the Improvement of a Restored Site	Canaan
Hayley	Distribution of Monarch Butterfly Populations Across Different Land Use Types	Wallingford
Kelci	Changes in Plant Biodiversity due to Saltwater Intrusion	Stonington
Tabitha	Falls River Water Quality Sampling	Ivoryton
Vishal	Water Quality Changes in the Farmington River	Farmington
Dillon	The Influence of the Transylvania Brook on the Pomperaug River	Southbury
Jeremy	Success of Wildflowers: Pollination, Germination, and Stratification	Southbury
Grace	Should Common CT Invasive Plants Be Used as BioFuels	Southport
Angela	Community Engagment Through Storm Water Management	Bridgeport
Chelsey	Can Bioswales Effectively Manage Storm Water Runoff in New Haven?	New Haven
Eric	Spreading Nature Awareness In Wethersfield	Wethersfield
Brooke	How Does Water Chemistry Vary Spatially in the Congamond Lake System?	Suffield
Gale	Bird Biodiversity of Sandy Point Bird Sanctuary in Winter	West Haven
Mannat	Encouraging Gardening for All Abilities by Rehabilitating a Seed Table	Wolcott
Jennifer	The Value of Wetlands in the Oxoboxo Brook	Montville

The projects tackled a diverse range of topics spanning natural resources and environmental science:





Twenty-one students presented or completed posters to describe their projects at the 12th Annual Connecticut Conference on Natural Resources, graduating as Connecticut Conservation Ambassadors. Over 300 environmental professionals, researchers, students, and governmental agencies attended the conference.



Final Project Schedule & Brief Budget Summary

The 2017-2018 CAP program successfully completed with the presentation of CAP student projects at the 2018 Connecticut Conference on Natural Resources on March 12, 2018 at the UConn Storrs Campus (see graduation picture in Project Outcomes & conference posters in Appendix A).

Budget Summary

Description	Amount
CAP Coordinator Salary	\$3,973.36
CAP Coordinator Fringe Benefits	\$2,209.20
Supplies	\$67.44
Total	\$6,250