

PROJECT TITLE

Title:	Building Environmental and Community Resilience with Rain Gardens: A Collaboration of SCSU and Neighborhood Housing Services in Newhallville, New Haven
Project Number:	
Start Date:	9/1/22
End Date:	8/31/23
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Congressional District:	3
Research Category:	N/A
Focus Category:	EDU, MET, WQN
Principal Investigators:	Sara Baker Bailey, Ph.D., Suzanne Huminski, M.S.

Summary

A non-technical summary of the work, with significant findings and/or project impact (1-2 paragraphs).

SCSU faculty, students and staff collaborated with partner Neighborhood Housing Services of Greater New Haven (NHS), completing green space revitalization adjacent to Beaver Pond, rain garden construction and refreshers in Newhallville, an underserved neighborhood in New Haven, and at SCSU's Campus Community Garden and Pollinator Pathway. The grant supported staff time for NHS and a University Assistant at SCSU to plan and facilitate programming and volunteer work throughout the project year. Funds also supported garden/ landscape tools and supplies, plant purchases, and minor expenses for producing a podcast. During Fall 2022, two undergraduate Honors courses (20 students/ 1 instructor per section) focused on native perennial planting, invasive plant removal, trail maintenance and litter clean up at Beaver Pond, and community awareness programming of rain gardens at Cherry Ann Park, Beaver Pond Park, in Newhallville, and at SCSU's Campus Community Garden/ Pollinator Pathway. Two Fall Saturday service days were attended by 50+ volunteers from students in four undergraduate courses, including Biology, Earth Science, and Environmental Sciences. A Recreation and Tourism graduate student assisted with programming, class visits, and community partner engagement and logistics. In Spring and Summer 2023, she was hired as a University Assistant to continue. With guidance from co-PI Huminski, she managed volunteer and class activities in all stages of planning and implementation. The majority of plants purchased with grant funds supported the Urban Scapes Nursery, a native plant and wildflower nursery employing New Haven youth in partnership with Audubon CT. Dr. Sara Baker Bailey created a podcast series titled *Hidden in Plain Sight*, associated with all grant activities. Fall and Spring community share outs were

open to all grant project participants, and to other community members interested in rain gardens. Grant funded projects included a new demonstration rain garden at the SCSU Campus Community Garden, a refreshed rain garden at NHS, and 4 refreshed gardens for residents of Newhallville. SCSU volunteers include the 2023 Southern Educational Opportunities Program throughout Summer 2023, SCSU GEMS Club, and the SCSU food security student advisory council.

Introduction

Brief background/problem statement (1 page maximum).

As Connecticut's second largest city with a population of approximately 130,000 people, New Haven has a high percentage of impermeable surface, a high rate of residential water use, and high population density. These factors contribute to overflow in city sewers, stream bank erosion, and poor water quality in streams and rivers, as well as direct release of untreated water into local waterbodies like Long Island Sound during intense precipitation events. There is need for stormwater diversion via green infrastructure and increased public awareness of stormwater management, like the rain gardens and educational community programs completed in this project. There is also need for improving green space near Beaver Pond in Newhallville to achieve similar improvements. Rain gardens and green space revitalization completed in this project can contribute to water quality improvement in local tributaries of the West River: Beaver Brook and Beaver Pond, and to groundwater recharge. Residents of Newhallville can benefit from this project because it improved community green space for recreation, aesthetics, and community gathering space, contributed to maintaining properties in good working order and through beautification. The rain gardens and restoration work we completed are designed for other species. Birds, pollinators, insects, and other animals benefit from removing invasive plants like bittersweet and mugwort and restoring native plant species and by improving water quality upon which they rely. SCSU students can benefit from applying skills and knowledge in their respective disciplines and from becoming more acquainted and connected with the community where they attend school. All of these stakeholders can benefit from access to increased participation opportunities, connecting with each other to build community capacity and teamwork, and from informational resources to steward freshwater resources. NHS improved connections with local residents and increased the number of rain gardens they construct, and the grant helped maintain, monitor, and assist local residents with rain garden care. Southern expanded place-based, experiential, and community-engagement learning opportunities and helped students apply skills and content they learned in their academic courses and increased connection with our surrounding community. Methodologies for community collaboration and adaptation for protecting water resources now and in the future are critical for fostering climate resilience, especially when the rate of change and unpredictable circumstances, including Covid-19, occur with increased frequency. In this way, the projects described throughout this proposal contributed to fostering community and environmental resilience. We scaled projects with layers of mutual benefit for environment, community, and education.

Objective(s)

Our project objectives were to embed service-learning projects into four courses in different departments, with HON 300 Introduction to Service Learning as the “anchor” and model. Students and faculty in all courses were directly involved building rain gardens and revitalizing public green space at Beaver Pond, in partnership with Neighborhood Housing Services of Greater New Haven. Our second goal was to build campus and community awareness of the importance of a systems approach to freshwater stewardship, and community value and capacity to do so together. Finally, our third objective was to develop a podcast called *Hidden in Plain Sight*, exploring freshwater stewardship in local neighborhoods through this grant.

Results/Discussion

Describe project results, with graphs/tables as necessary. No minimum or maximum length.

Throughout the fall semester, we led the majority of grant funded activities because it aligns with the growing season. The fall included the majority of rain garden planning and greenspace revitalization at Beaver Pond and Beaver Pond Park, while Spring and Summer 2023 included most of the work on refreshing and establishing rain gardens. Throughout the project year, Sara Baker Bailey gathered footage and audio for a podcast series, both outdoors during events and through interviews at the SCSU podcast studio. The co-PI’s, staff from NHS and SCSU, and SCSU faculty met weekly and bi-weekly from February- August, 2023, for spring and summer planning. The information below is cataloged by date for details on grant funded events and results.

Fall 2022 Activities and Photos:

September 1, 2022: Walking tour, SCSU garden, Beaver Ponds Park: Plan service activities and logistics, faculty and staff. Prior to student activities and projects, NHS staff and SCSU faculty met, mapped, and walked routes for rain garden community and campus activities. All student involved activities were within walking distance of campus.

By September 16, 2022: NHS inventoried and organized NHS Tool Lending Library and SCSU community garden staff inventoried garden tools and equipment for fall service.

9/22/22: SCSU Graduate Assistant Taylor Marino (Rec, Tourism and Sport Management) conducted class visits for Earth Science, Biology, Environmental Studies to introduce Saturday service options for assisting with rain garden and green space revitalization at Beaver Pond.

Sat. September 24 (10AM - 1PM) Volunteer Service Day: 24 attendees, led by NHS staff, Taylor Marino, co-PI's Bailey and Huminski, SCSU faculty (Earth Science) Dushmantha Jayawickreme.

September 28th: NHS staff meets with City of New Haven Livable City Initiative, New Haven Police, NHS Colleagues to discuss illegal dumping, 44 Lilac Street and including litter in Newhallville waterways

Sat. Oct 1: Beaver Ponds Park service: 10am – 1 pm Rainout. This was SCSU's major service day for the entire campus community. It was cancelled and was not rescheduled. This meant that 50 volunteers did not participate in grant projects as planned.

Saturday October 8th Beaver Ponds Park Service:



10 am-1 pm. This event included volunteers campus-wide, including the GEMS Club and Bio Club, and participation from all classes listed in the proposal (ESC, BIO, EGMS, RTSM, HON). Service projects with NHS staff included invasive vine removal, trail maintenance, litter removal, bulb planting,

removal of dead limbs from multiple areas of Beaver Pond Park.



October 12th Learning Corridor installation of artistic communication billboards



with HON 300. One of multiple service days during class sessions. Students in HON 300 spent class time (2.5 hours) completing grant funded service projects. The Learning Corridor is a community project designed and managed by the same local Newhallville non-profit that runs Urban Scapes Nursery. Urban Scapes grows and sells native pollinator and bird-friendly perennial flowers and shrubs. One goal of the grant was to purchase as many plants as possible from Urban Scapes for cultivating and sprucing up rain gardens.

October 17th Canoe Trip West River, SCSU HON 300/Baker



20 SCSU students spent the afternoon learning the basics of canoeing with NHS and New Haven Parks Dept on the West River, which is fed by Beaver Brook

and Beaver Pond. Through experience, students gained awareness of the neighborhood watershed, and where campus streams flow, ultimately to Long Island Sound. Students brought trash pickers with them in the canoes, and learned about local native plants, invasives, and birds as well.

October 31st Ivy Street Community Garden clean-up:



NHS staff and HON 300 service session.

Sunday, November 6th Choate/SCSU students in Sherman Forest and Beaver Ponds Park



Invasive plant removal, trail maintenance, litter cleanup, vine removal.

Learning Corridor Celebration of Urban Scape Nursery: founded and directed by local resident, Doreen Abubakar, in partnership with Audubon CT, and Dennis Riordan.



November 7th SCSU HON 300/NHS to Newhallville to refresh/ maintain Florence Caldwell's Rain Garden



December 5th SCSU Community Conversation Café: Fall shareout event, includes feedback, Spring '23 planning. (No photos). Dr. Bailey's HON 300 section led this event, free and open to all participants in grant activities. Organized as a "Conversation Café," the event was facilitated by HON 300 students to explore progress, plan future improvements and expansion, and suggest improvements to projects. Approximately 40 attendees participated.

Spring/ Summer, 2023:

Beginning in February, 2023, virtual weekly organizing meetings were held for updating and planning progress with podcast production and spring/summer garden activities. NHS staff, co-PI's Huminski and Baker, Taylor Marino (University Assistant funded by grant), Joseph Milone (RTSM Faculty) and Derek Faulkner (Sustainability UA) attended. SCSU's rain garden was planned at the SCSU Campus Community Garden, as well as Beaver Pond Park invasive removal, and a late spring share-out event to kick off the summer season at the garden.

Mar/April: Campus Community Garden Rain Garden mural design competition:



The competition was called “Make Your Mark” and was open to the entire SCSU campus community. To engage the campus community and promote awareness, Taylor Marino led other sustainability interns organizing the mural design competition for the side of the garden shed, adjacent to the planned demonstration rain garden. Over the course of two weeks, the campus community was invited to submit designs for a mural with a garden and water theme. The competition was promoted and designs were displayed in Buley Library. Eight designs were

submitted, and the photo below shows the early stage of the mural being painted



by volunteers at the garden in a “paint-by-number” style. The tarps and cardboard show where the new rain garden is located.

May 16 Tree planting, Beaver Pond and SCSU campus and Garden Celebration:



Food Justice and Green Space Share Out: With refreshments from Café George, all spring participants including community partners and residents from Newhallville discussed project progress and future potential for collaboration. The event was planned for offering thanks to all community members for their contributions and to enjoy the early season at the garden in early summer. Local organizations attending included The Huneebee Project, ConnCat, NHS, and several soup kitchen volunteers. Campus attendees included Sodexo staff, the food justice advisory council, Athletics, Residence Life, and faculty from

multiple departments.

July/ Aug 2023 Summer Rain Garden Refreshes and Construction, Newhallville, with SEOP students and mentors



The Southern Educational Opportunities Program (SEOP), signed on for 5 weekly events, volunteering to help rain gardens. Southern’s SEOP supports college readiness for incoming first-year students. Participants have an option for recreation activities in the early afternoons after morning classes. For each session, 8-12 students and a mentor joined Taylor Marino, sustainability staff, and NHS staff to join rain garden construction and refreshers in local Newhallville neighborhoods. One session was held at the Campus Community garden and the rest were in Newhallville locations, pictured below. Almost all plants for the gardens were purchased from Urban Scapes Nursery.



Post-Grant Fall Rain Garden Activity at Campus Community Garden:



Though after the grant project year closed, students in the Fall 2023 section of HON 300 continued to improve the new demonstration rain garden at the Campus Community Garden. With a focus on Service to Self, Service to Others, Service to the World Around Us, the students planted bulbs, late season perennial flowers and shrubs, and installed interpretive signage at an additional new flower bed. For the future, they identified a rain gauge or flow meter as important ways to teach people about rain gardens. Students continued with invasive vine removal at Cherry Ann Park, and learned about freshwater stewardship as an essential pathway for thriving in place. HON 300 students also decided to pick and arrange bouquets with flowers from the pollinator pathway and the new rain garden, and then distributed them to administrative assistants in different departments on campus.

Communication Projects

Communication efforts resulted in a three-episode podcast series focusing on stormwater management in New Haven, the community engagement work that Neighborhood Housing Services has been doing in this area, and its partnership with Southern Connecticut State University. The philosophical concept of the podcast series was the theme hidden in plain sight. The 3 episodes highlighted the stormwater management efforts that are present in the everyday, but often goes unnoticed. From September 1 to November 23, Hidden in Plain Sight had 16 plays.

Hidden in Plain Sight Season One can be accessed at <https://on.soundcloud.com/BvJ9C>

Episode One: New Haven as a Green City

Guest: Adam Rawlings, Community Engagement Specialist, Neighborhood Housing Services of New Haven

Summary: In this episode, we focus on New Haven as a vulnerable coastal community. We explore the green infrastructure and stormwater management projects that are prevalent in the city focusing on the bioswale initiative as well as NHS of New Haven's work with residential rain gardens.

Episode Two: Campus and Community Engagement

Guests:

- Adam Rawlings, Community Engagement Specialist, Neighborhood Housing Services of New Haven
- Stephen Cremin-Endes, Director of Community Building & Organizing, Neighborhood Housing Services of New Haven
- Suzie Huminski, Director of the Office of Sustainability, Southern Connecticut State University

Summary: In this episode, we focus on the campus-community partnership between NHS of New Haven and Southern Connecticut State University. We explore "the ponds" and talk about the stormwater management initiatives that are taking place around Beaver Ponds and Newhallville neighborhood.

Episode Three: Access and Accessibility

Guest: Taylor Marino (M.S. - Recreation Administration) UA Rain Garden and Community Garden Manager, Southern Connecticut State University

Summary: In this episode, we explore issues surrounding access to water and the challenges to accessing these places and spaces in New Haven. We return to "the ponds" to discuss these issues and explore the role that Southern has as an environmental steward.

This podcast series can be useful in the following ways:

1. A community engagement resource for NHS to share with local residents, community partners, and grant funders.

2. An educational resource for SCSU as the podcast series and/or episodes can be used as “readings’ in HON 300 (Introduction to Service Learning) as well as courses in Earth Science, Geography and Marine Science, and Biology.
3. An educational resource for community organizations like CPEN, Friends of Beaver Ponds, etc.

The production of the podcast series was the only communication project that was feasible to complete. Video footage was collected from Dr. Baker Bailey’s fall 2022 HON 300 class as well as time lapse footage of the campus garden throughout the seasons. This content was captured, but ultimately due to time constraints and inconsistencies in material a complete video project was not produced by the end of the grant cycle. Social media content was created to help advertise and promote the podcast series. Again, due to the massive production commitment for the podcast series, the social media efforts engaged were streamlined to focus on the podcast. Podcast production also faced substantial challenges including loss and recovery of raw footage during the editing process. Because of these delays, Dr. Baker Bailey will continue to edit and revise the podcast series in the coming year as she develops new episodes associated with a new grant. Revised versions will better engage general public and include additional features to attract and maintain general public interest.

Conclusions

Concise summary of project findings/future recommendations (1-2 paragraphs).

Overall the grant partners met grant goals, highlighted by the high number of volunteer events, participants, and the wide and consistent service projects throughout Newhallville and on the SCSU campus. Grant support for the UA position to support service activities for course - embedded projects was key for success and recruitment. Faculty participation in service experiences was important for recruitment, and they reported that completing the service experience helped them understand potential benefit of spending class time on a service project through improving student motivation, camaraderie, and disposition for learning. It will be helpful in the future to measure specific faculty and student readiness to learn for assessing service-learning as part of courses. Teamwork between project partners was a consistent strength throughout the grant year, and improved with dedicated time and focus on division of tasks. Camaraderie was a benefit between partners and an important part of community capacity building. Changes to the budget were important for meeting grant goals. We initially overbudgeted for plants, and underbudgeted for staffing for the UA position. The PI’s and NHS partners were grateful to UConn/CLEAR for flexibility in adapting the budget to best meet project needs. Logistic intensive projects, like gardens, where plants that are vulnerable to lack of water and which do best when they go into the soil bed promptly, require staffing to coordinate beyond what a faculty member can usually feasibly offer. The podcast was much more labor intensive and beset with challenges than anticipated. Baker Bailey is excited to continue editing and adapting the existing podcast episodes for public interest and engagement. The grant support made the episodes possible.

Acknowledgements

Include if necessary.

References