Project Period	09/01/2011 - 09/01/2013
Award Amount	$43,993.60
Matching Contributions	$22,722.00
Project Location Description (from Proposal)	Fairfax County, VA

Project Summary (from Proposal)

Work with students from Daniels Run Elementary and Lanier Middle School on schoolyard conservation projects, promoting awareness and stewardship in the Accotink Creek watershed. Project will create a freshwater bog, two vernal pool habitats, a bioretention cell filtering storm-water runoff, and a stream-bank restoration.

Summary of Accomplishments

Lands and Waters' Vernal Pool Schoolyard Restoration Program is a watershed education and restoration project focused on stormwater management, habitat restoration, and restoring remnant historic wetlands, working with two schools, Daniels Run Elementary and Lanier Middle School. The educational component supplemented school curriculum by providing hands-on learning experiences as well as meaningful watershed educational experiences (MWEE) to students, as required by the Chesapeake Bay 2000 Agreement. The restoration component included creating 2 vernal pool habitats in historic wetland areas, planting native plants to stabilize an eroding stream (Daniels Run), invasive removals to restore native habitats, and the creation of a native bog and a bioretention cell to address campus stormwater runoff issues.

Lands and Waters successfully completed all activities, with the support of volunteers, Daniels Run Elementary and Lanier Middle School students and community, non-profits, businesses, and local government entities. The vernal pool habitats, bog, and the streambank plantings are well-established, supporting local communities of native plants, insects, and amphibians, and enhancing the surrounding habitats by providing additional biodiversity. The Lanier Bioretention Cell was significantly expanded from the original plan and has successfully weathered several large rain events.

Lands and Waters plans to keep working with both school communities to support the projects.

Lessons Learned

The main challenge was the community engagement component. Several activities were not as well-attended as we had hoped, despite our outreach efforts. We feel that the busy personal schedules of many community members played a significant factor in this issue. We found that outreach activities where we partnered with established entities, like the Fairchester Woods Civic Association and the Parks and Recreation Advisory Board to get community support for the Kutner Park Vernal Pool, and with Accenture, George Mason University, and Sustainable Fairfax for volunteer workdays, provided the most effective way to achieve strong community turnout and engagement. Student interest and enthusiasm generated by our educational programming often resulted in parents and siblings participating in our workdays. We feel that the educational signs will provide an effective way to educate local communities about stormwater and wetland habitat issues and solutions on an ongoing basis.

Partnerships with relevant local government entities for guidance, expertise, permissions and resources is extremely important. We worked with the City of Fairfax School Board, City of Fairfax Parks and Recreation, City of Fairfax Department of Public Works, Fairfax County Public Schools, Northern Virginia Soil and Water Conservation District, and Fairfax County's Department of Public Works and Environmental Services to ensure the success of the project.

Conservation Activities	Create Vernal Pool Habitats
Progress Measures	Acres of wetland habitat improved
Value at Grant Completion	6
Conservation Activities	Create Bioretention Cell at Lanier
Progress Measures	square feet of bioretention installed
Value at Grant Completion	740
Conservation Activities	Stabilize streambank at Daniels Run
Progress Measures	Linear feet of streambank/shoreline stabilized
Value at Grant Completion	30
Conservation Activities	Create Bog at Daniels Run
Progress Measures	Other Activity Metric (square feet of freshwater bog created)
Value at Grant Completion	384


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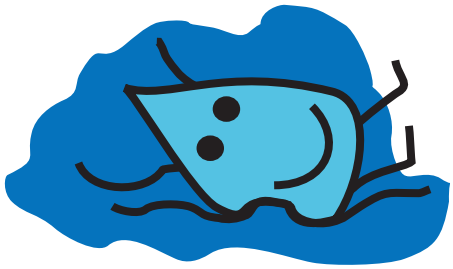

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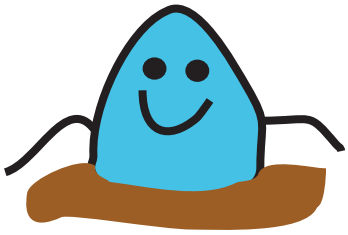

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LANDS and WATERS
Jeanette Stewart
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Falls Church, VA 22042
703-204-0841
571-294-3646
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National Fish and Wildlife Foundation Grant Announcement:

Lands and Waters has been awarded a $44,000 Small Watershed Grant from the National Fish and Wildlife Foundation (NFWF), with a matching contribution of $22,000 from Lands and Waters.

This grant will fund hands-on schoolyard conservation projects at Daniels Run Elementary and Lanier Middle School, promoting awareness and stewardship of wetlands and watersheds, combined with environmental education programming. Projects include creation of a freshwater bog, 2 vernal pool habitats, a bioretention cell filtering storm-water runoff, and stream-bank stabilization. This will expand on existing green school programs, promote community engagement and citizen stewardship, and help the City of Fairfax meet its anticipated TMDL requirements.

Project Breakdown:
1-Create bioretention cell to receive storm-water runoff from a 14,720 ft2 parking lot, with capacity to accommodate a ½" storm (Lanier).
2-Restore 2 historic but degraded swamp forests by removing invasives, creating vernal pools, and planting native plant communities representative of Virginia swamp forest. This will provide an interesting and unique ecosystem in a highly developed area. (Lanier and Daniels Run).
3-Create a freshwater bog to filter and absorb storm-water runoff and provide an example of a wetland environment (Daniels Run).
4-Educate students and local communities about the importance of wetlands (vernal pools) to encourage their preservation and restoration (Lanier and Daniels Run).
5-Provide environmental benefits to the local Accotink Creek Watershed in the form of reduced storm-water runoff and stream-bank erosion (stream-bank stabilization project with native plantings), and increased wetland habitat and biodiversity (Daniels Run).

The City of Fairfax, and in particular the School Board, has been a strong and valuable partner for Lands and Waters over the years. We are very excited about this opportunity to bring quality environmental programming and significant restoration projects to the Lanier and Daniels Run school communities, and look forward to working with you!

Jeanette Stewart.


Skills to Succeed


accenture

Chesapeake Bay Stewardship Fund Final Programmatic Report Narrative

Instructions: Save this document on your computer and complete the narrative in the format provided. The final narrative should not exceed ten (10) pages; do not delete the text provided below. Once complete, upload this document into the on-line final programmatic report task as instructed.

1. Project Description.

Briefly describe your project, including a description of the problem your project is trying to address, the project's objectives and strategies, as well as the project location, and a characterization of the watershed and the relevant characteristics of the community's natural resources, population, and economy.

Description: Lands and Waters' Vernal Pool Schoolyard Restoration Program is a watershed education and restoration project focused on stormwater management, habitat restoration, and restoring remnant historic wetlands, working with two schools, Daniels Run Elementary and Lanier Middle School. The educational component supplemented school curriculum by providing hands-on learning experiences as well as meaningful watershed educational experiences (MWEE) to students, as required by the Chesapeake Bay 2000 Agreement. The restoration component included creating 2 vernal pool habitats in historic wetland areas, planting native plants to stabilize an eroding stream (Daniels Run), invasive removals to restore native habitats, and the creation of a native bog and a bioretention cell to address campus stormwater runoff issues.

Problem: This project was designed to address problems associated with stormwater runoff, native habitat degradation, and watershed issues, as well as a lack of adequate student and community engagement in these issues.

Objective: Implement meaningful restoration and stormwater reduction projects on a local scale in a way that engages and educates students, communities, and public, private, and non-profit entities.

Strategy:

1-Engage students through hands-on educational programs that promote watershed and habitat awareness.
2-Involve students and communities in meaningful environmental restoration projects through volunteer work and educational outreach.
3-Partner with local public, private, and non-profit entities including the City of Fairfax, Fairfax County, Friends of Accotink Creek, Northern Virginia Soil and Water Conservation District, George Mason University, Angler Environmental, and Accenture.

Location: Daniels Run Elementary, Kutner Park and Lanier Middle School, City of Fairfax, Fairfax, VA, in the Accotink Creek and Difficult Run Watersheds. The Kutner Park vernal pool was adjacent to the Accotink Creek Watershed, just inside the Difficult Run watershed.

Characteristics: The Accotink Creek watershed is 87% developed, with 27% impervious. According to the Accotink Creek Watershed Management Plan, "Geomorphological assessments indicated poor conditions throughout most of the watershed, with severely incised stream channels and active stream widening in most of the smaller tributaries. Unstable habitat and sediment bars, eroded banks, tree falls and log jams were widespread throughout.". As a whole, the Difficult Run watershed is less developed, at 18.4%. The condition of the watershed at Kutner Park closely resembles that of Accotink Creek.

Natural resources, population, and economy: The current population of Fairfax county is1,109,725. Daniels Run Elementary has 733 students, and Lanier Middle School has 1246 students. Daniels Run Elementary is a Title 1 school, and both schools serve a diverse ethnic population.

Both schools have adjacent relatively undisturbed natural areas. Daniels Run Elementary is beside Daniels Run, which is a signficantly eroded and channelized stream at this point. An athletic field was built in the flood plain, but a small section was left undisturbed, which is where we created the vernal pool habitat. Lanier Middle School was built on the divide between the Accotink Creek and Difficult Run watersheds, and lacks natural areas. Kutner Park, a City of Fairfax Park is adjacent, providing access to a natural area. Kutner Park is a remnant wetland forest.

2. Summary of Accomplishments

In four to five sentences, provide a brief summary of the project's key accomplishments and outcomes that were observed or measured.

We worked primarily with the Daniels Run 4th grade and Ecoaction team, serving approximately 250 students, and the Lanier 7th grade and Ecoclub, serving approximately 1300 students over the 2 years. We created 2 vernal pool habitats, a wetland bog, a bioretention cell, and did a streambank stabilization planting in Daniels Run.

3. Project Activities & Outcomes

Activities

- Describe and quantify (using the approved metrics referenced in your grant agreement) the primary activities conducted during this grant.

Activities	Metrics	Value
Create Vernal Pool Habitats	Acres of wetland habitat improved	6
Create Bioretention Cell (LMS)	square feet of bioretention installed	740
Stabilize streambank (DR)	Linear ft of streambank/shoreline stabilized	30
Create Bog at Daniels Run	square feet of freshwater bog created	384

Both vernal pools were hand-dug with the assistance of volunteers, in order to minimize negative impacts to the existing forest. Native plants in the affected area were relocated. Both pools are now supporting healthy, diverse populations of amphibians and macroinvertebrates, enhancing the surrounding habitat, providing a resource for birds and mammals.

The Lanier Bioretention Cell is fully functional, absorbing and filtering stormwater runoff from a school parking lot, including during several significant rain events this year. The bioretention cell has an outflow valve that allows students to do water quality testing on water entering and leaving the facility, in order to measure the effectiveness.

The streambank stabilization plantings of Caryx Grayii were successful, and provide a nature-based solution to the stormwater runoff affecting the stream.

The Daniels Run Bog has successfully resolved the stormwater runoff issue at the site, and is providing an enjoyable nature feature for Daniels Run students, with trails for them to explore. The native plants provide excellent habitat for local pollinators.

Educational Activities:
We led classroom and hands-on conservation programs with the 4th and 7th grade of Daniels Run and Lanier respectively to support established Virginia SOL curriculae for human impact. This included programs on wetland habitat, stormwater runoff, biodiversity, habitat degradation.

4th grade (250 students, 125 per year):
-Biodiversity surveys.
-Vernal Pool education.
-Classroom program on wetlands.

7th grade (1300 students, 650 per year):
-Biodiversity surveys.
-Vernal Pool education.
-Schoolyard stormwater survey and educational program.

Community engagement/outreach:
-Volunteer Workdays: We led 4 large community workdays focused on invasive removal, native plantings, and creation of the bog and vernal pools, partnering with Accenture, George Mason University students, and Transition Fairfax, with support and volunteers from City of Fairfax Parks and Recreation, Friends of Accotink Creek, and both schools.
-Teacher Workshops: Vernal pool habitat and bog (overview and educational opportunities) for the Daniels Run Sustainability Committee, reaching teachers in all grades, and vernal pool habitat and bioretention cell (overview and educational opportunities) for the Lanier 7th grade science teachers.

-Educational presentations: We led community presentations for the neighbors of Lanier Middle School, City of Fairfax Parks and Recreation, City of Fairfax School Board, and Transition Fairfax.
-Educational Signs: We created 4 educational signs, for both vernal pools, the Daniels Run bog and the Lanier Bioretention Cell.

All activities met or exceeded our goals.

- Briefly explain discrepancies between the activities conducted during the grant and the activities agreed upon in your grant agreement.

The Lanier Bioretention cell was significantly expanded in size, capacity, and complexity. The end result was a bioretention cell with an underdrain system, a forebay and capacity for water quality testing, allowing the site to manage a 1-inch Water Quality Volume (WQV), doubling its effectiveness. This was an innovative demonstration project that showed the effectiveness of shallow bioretention cells in treating stormwater runoff.

Outcomes

- Describe and quantify progress towards achieving the project outcomes described in your grant agreement. (Quantify using the approved metrics referenced in your grant agreement or by using more relevant metrics not included in the application.)

Project Outcomes:

1-Create bioretention cell to receive storm-water runoff from a 14,720 ft2 parking lot with capacity to accommodate a ½" storm.

We doubled the capacity of the bioretention cell by partnering with the City of Fairfax Department of Public Works, NVSWCD (Northern Virginia Soil and Water Conservation District), and Fairfax County's Department of Public Works and Environmental Services on an improved design, and contracted with Angler Environmental to do the installation.

2-Restore 2 historic but degraded swamp forests by removing invasives, creating vernal pools, and planting native plant communities representative of Virginia swamp forest. This will provide an interesting and unique ecosystem in a highly developed area. The two forests cover 6 acres.

Both vernal pools were successfully created and ongoing educational activities are planned. The signs provide continuing community education. The native plantings and invasive removals have improved both natural areas.

3-Create a freshwater bog to filter and absorb stormwater runoff and provide an example of a wetland environment.

The freshwater bog was planted by students and volunteers with native plants including cardinal flower, joe pye weed, swamp milkweed, and butterfly weed. Paths through the bog provide close-up experiences with nature for students and the community. This bog successfully addressed an issue of standing water on the field.

4-Educate students and local communities about the importance of wetlands (vernal pools) to encourage their preservation and restoration.

This project effectively reached students in the classrooms, through creating and maintaining the wetland projects, and the field activities. The best avenues for educating the community was through volunteers workdays, and the educational signs, which were placed in visible and well visited areas, providing a permanent means to inform the public. Lands and Waters has experienced significant interest from schools and communities about vernal pool and wetland restoration as a result of this project, and is developing a wetland demonstration project, the Habitat Stewardship Workshop, for a teacher's workshop this fall, in partnership with NFWF, NOVA Outside, Get2Green, and Fairfax County Public Schools.

5-Provide environmental benefits to the local Accotink Creek Watershed in the form of reduced storm-water runoff, increased wetland habitat and biodiversity, and reduced stream-bank erosion.

The Lanier biocell has significantly reduced runoff and pollution from a school parking lot in the headwaters of the Accotink Creek watershed. The native plantings in the vernal pool habitats provide additional biodiversity and understory habitat, and both pools are supporting diverse populations of aquatic macroinvertebrates and amphibians. The native stream-bank plantings in Daniels Run were successful, and have endured several significant flood events. This confirms the viability of caryx grayii as a useful solution in reducing streambank erosion.

- Briefly explain discrepancies between what actually happened compared to what was anticipated to happen.
- Provide any further information (such as unexpected outcomes) important for understanding project activities and outcome results.

The most significant discrepancy was the changes to the bioretention cell.

4. Challenges and Lessons Learned

Describe any specific challenges that have arisen during the course of the project and how they have been addressed. Also describe the key lessons learned from this project, such as the least and most effective conservation practices or notable aspects of the project's methods, monitoring, or results. How could other conservation organizations adapt their projects to build upon some of these key lessons about what worked best and what did not?

The main challenge was the community engagement component. Several activities were not as well-attended as we had hoped, despite our outreach efforts. We feel that the busy personal schedules of many community members played a significant factor in this issue. We found that outreach activities where we partnered with established entities, like the Fairchester Woods Civic Association and the Parks and Recreation Advisory Board to get community support for the Kutner Park Vernal Pool, and with Accenture, George Mason University, and Sustainable Fairfax for volunteer workdays, provided the most effective way to achieve strong community turnout and engagement. Student interest and enthusiasm generated by our educational programming often resulted in parents and siblings participating in our workdays. We feel that the educational signs will provide an effective way to educate local communities about stormwater and wetland habitat issues and solutions on an ongoing basis.

Scheduling educational programming with schools was also challenging at times. Having a strong working relationship with the school administration and lead teachers was very important. Connecting the educational programming with required curricula, and scheduling activities in advance in order to avoid testing periods and other stressful school periods was also very helpful. Connecting with after-school programs, especially eco clubs and green teams, is a good way to build sustained and meaningful engagement without interfering with classroom schedules/activities.

Partnerships with relevant local government entities for guidance, expertise, permissions and resources is extremely important. We worked with the City of Fairfax School Board, City of Fairfax Parks and Recreation, City of Fairfax Department of Public Works, Fairfax County Public Schools, Northern Virginia Soil and Water Conservation District, and Fairfax County's Department of Public Works and Environmental Services to ensure the success of the project.

Additional support, in the form of funding, volunteers, and resources, was important in meeting our budget and maximizing the benefits of this project.

Flexibility and innovation is a good way to enhance the effectiveness of a project. For example, during the planning stage of the Lanier biocell, we realized that we could significantly improve the project by expanding into an unused corner of the parking lot. We choose a shallow biocell design with an under-drain system in order to accommodate the site restrictions. This also created opportunities for student participation in water quality monitoring, by testing and comparing stormwater as it enters and exits the biocell.

5. Dissemination

Briefly identify any dissemination of lessons learned or other project results to external audiences, such as the public or other conservation organizations.

This will be discussed at our upcoming October Habitat Stewardship Workshop.

The lessons that Lands and Waters learned from this project will be shared with schools and partners at the beginning of new projects.

6. Project Documents
Include in your final programmatic report, via the Uploads section of this task, the following:

- 2-10 representative photos from the project. Photos need to have a minimum resolution of 300 dpi;
- report publications, GIS data, brochures, videos, outreach tools, press releases, media coverage;
- any project deliverables per the terms of your grant agreement.

Powerpoints presentations: – DR & LMS teacher presentations, biocell (city of ffx schoolboard, vernal pool)
LMS Vp video
signs

POSTING OF FINAL REPORT: *This report and attached project documents may be shared by the Foundation and any Funding Source for the Project via their respective websites. In the event that the Recipient intends to claim that its final report or project documents contains material that does not have to be posted on such websites because it is protected from disclosure by statutory or regulatory provisions, the Recipient shall clearly mark all such potentially protected materials as "PROTECTED" and provide an explanation and complete citation to the statutory or regulatory source for such protection.*