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Rain Garden Treats Wilmington School Stormwater

On a pleasant autumn day in a south-central Wilmington neighborhood known as The Bottom, third- and fifth-graders spilling out of Gregory Elementary School of Science and Math seemed glad to get a chance to stretch outdoors.

But the students weren't headed for the playground. Joined by their teachers and the principal, they filed out to an area between the school's front parking lot and Anne Street, where a small chore awaited: helping construct a rain garden to keep polluted parking lot water from reaching Burnt Mill Creek, then the Cape Fear River and the Atlantic Ocean.

Also waiting, shovel in hand, was project engineer Jason Wright, a North Carolina Cooperative Extension associate in coastal stormwater management with North Carolina State University's Department of Biological and Agricultural Engineering. Wright and Joe Abbate, Cape Fear River Watch program coordinator, had put in a hard morning's work installing trees and preparing the earth for additional plantings.

Wright gave some preliminary instructions, and the kids teamed up and literally dug in, scooping out holes and placing a pre-selected array of vegetation in a rain garden, a water quality best management practice, or BMP: a structure, landscape design or activity that reduces stormwater runoff pollution.



Jason Wright, a North Carolina Cooperative Extension coastal stormwater management associate, helps students from Wilmington's Gregory Elementary School start planting the new rain garden in front of the school. (photo by Art Latham)

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“As water quality in urban areas continues to degrade, we have to reduce the polluting

impacts of impervious areas,” says Wright. “What makes Burnt Mill Creek so challenging is that it's completely built out, so the BMPs have to be retrofits.”

Burnt Mill Creek is on the U.S. Environmental Protection Agency's most impaired waterways list due mainly to urban stormwater runoff such as the school's parking lot and adjacent streets contribute. The rest of the creek's 4,274-acre watershed includes many other highly urbanized acres with many impervious -- that is, hard-paved -- surfaces, including single and multi-family homes, recreational parks and commercial and industrial areas.

Wright and Abbate also have worked on other EPA 319 grant-sponsored BMPs -- permeable pavement and rain gardens at the Wilmington Family YMCA; a stormwater wetland to treat a 5-acre drainage at Stonestrow Condominiums at Burnt Mill Creek's headwaters; and two sod bioretention cells at Port City Java's corporate headquarters' parking lot -- all near heavily traveled Market Street or UNC-Wilmington.

To get these projects started, Cooperative Extension's Watershed Education for Communities and Local Officials office convened the Burnt Mill and Smith creeks watershed group in 2000 to guide a watershed improvement planning process sponsored by the state Department of Environment and Natural Resources' Ecosystem Enhancement Program. WECO is housed in N.C. State's Department of Agricultural and Resource Economics. A \$600,000 EPA grant managed by WECO and the Biological and Agricultural Engineering Department funds The Burnt Mill Creek project, with an additional \$400,000 match from DENR's EEP, UNC-Wilmington, the city of Wilmington and NC State.

“Last year the local watershed advisory group helped us develop criteria for selecting a neighborhood in which to focus our outreach efforts, and provided a neighborhood contact,” says Christy Perrin, WECO program manager. “That led us to the Bottom Empowerment Group, which recommended we start with a highly visible demonstration BMP in the neighborhood, so we approached Gregory Elementary.”

Partnering with Bottom Empowerment Group, the Extension water quality specialists also teach how to help beautify neighborhoods and stormwater runoff pollution reduction through backyard rain garden and rain barrel installations.

“Restoration takes time,” Perrin says, “but momentum continues to build in the Burnt Mill Creek Watershed as more citizens and business owners enthusiastically step up to the plate to participate.”

Also involved in the projects are Dr. Bill Hunt, assistant professor and Cooperative Extension water quality specialist, and Dr. Mike Burchell, Extension assistant professor, both with N.C. State's Biological and Agricultural Engineering Department.

Other grant project partners include Wilmington Stormwater Services, New Hanover County Planning Department and New Hanover Soil and Water Conservation District.

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