Connecting NPS Management to Receiving Streams through BMP Education and Demonstration

#15-900

Colin G. Massey
County Agent – Ag & Water Quality
Washington County
UA System Division of Agriculture Cooperative Extension
Objectives

- Increase public awareness of storm drain infrastructure and urban non-point source pollutant impacts on water quality
- Connect land-use actions to water quality of receiving streams through public engagement
Implementation Methods

- Storm drain inlet filter demos
- Whisker demos
- LID demonstrations
- Ballot Bins
NWA Storm Drain Filter Demonstrations

- this is an educational tool to provide awareness in a unique way – a different angle

- Show types of urban pollutants entering local creeks

- experiment with maintenance and demonstrate pre-treatment
Locations

Fayetteville Entertainment District

Fayetteville – Walker Park – Public Library

Razorback Greenway

Springdale
Pollutant Filter Results
Whisker Demonstration

- Visualize pollutant path
- Connect drain to outfall
- Interactive engagement
Ballot Bins

- Interactive engagement
- “ownership” of action
- Social Media
- Tangible results
- Local demand for expansion
  - 10 additional bins for local businesses

“I have seen a marked improvement at the worst areas since the installation of the bins. Now that patrons recognize the shape and color, I feel the usage will continue to improve at additional locations.”
– Joey Lewis – Parking Maint.
Hi Colin,

Here are the latest stats on it. Totally amazing! I looked back as far as could look and this post exceeded the popularity of our former highest performing post by double! And that was when Emerald Ash Borer was first discovered. You've really got something special here. Thanks for what you're doing.

80,357 people reached

What this doesn't show is the actions (clicks) and that's at 17,300, WAY over and above anything we've ever posted.

Kimberly Rowe
Program Associate
University of Arkansas Division of Agriculture - Extension (EMU/RE)
STORM DRAINS
like the one below, flow directly to local
WATER WAYS
Carrying POLLUTION
such as litter, sediment or chemicals

This inlet filter demonstration is helping
raise awareness to prevent pollution

See what can get caught
in this storm drain by following
#DrainsToCreek

Fayetteville First Thursdays 2016 & 2017
Technology Transfer

Presentations:

- Washington Co. Cattlemen’s
- Dickson St. Merchant’s Assoc.
- Butterfield Trail Village
- Shiloh Museum Summer Camp
- Washington Elementary Summer Camp
- Fayetteville Kiwanis
- Arkansas Water Resources Conference & Walking Tour of 4 educational demos
- Fayetteville Lion’s Club
- Fayetteville Environmental Action Committee
Outreach & Engagement

Litter Removal:

- (3) Pack Rat Outdoor Center (Gregg St. & Sublett Creek)
- (4) UA Rock Camp Freshmen
  - (2) Urban Trails
  - (2) Urban Cigarette Butt
- (2) Make-A-Difference Day Cleanups
Fayetteville Entertainment District
Cigarette butt cleanups

2016 – 11 lbs
2017 – 13 lbs
August: University of Arkansas Rock Camp 2016 & 2017

“I would have never even thought about this as a problem had I not seen it myself” – Rock Camp Student
Low Impact Development Demonstrations

**Springdale bioswale controls and cleans runoff**

A Springdale's Green Infrastructure Master Plan focuses on enhancing green infrastructure and its benefits in the community. The project includes a bioswale that controls and cleans runoff.

The bioswale, located on the north side of the parking lot, is designed to capture and treat stormwater runoff from a catchment area. The bioswale ecosystem is filled with native plants and trees that help filter and absorb water, reducing the amount of runoff that enters the storm drain system.

Washington County Cooperative Extension Service agent Katie Meque said, "This project is a great demonstration of green infrastructure and showcases the many benefits of urban trees, including improved water quality, reduced stormwater impacts, and enhanced wildlife habitat." The project also promotes public awareness and education about the benefits of green infrastructure.
Manage Runoff with Green Infrastructure

BIORETENTION DEMONSTRATION
This bioretention basin intercepts stormwater runoff from 1½ acres of Springdale Public Works’ property. The basin is planted with native trees, shrubs, grasses and perennials that filter potential pollutants from roofs, concrete pads, pavement and equipment in the yard. The plants take up more stormwater than the previously grassed area. In the bottom of the basin, a gravel-lined trench with an underdrain releases water slowly before it drains to Spring Creek, a major tributary in the Illinois River Watershed.

BENEFITS OF BIORETENTION
• Enhance water quality by filtering pollutants from stormwater
• Protect waterways from intense stormwater flows during storms
• Increase water infiltration and recharge groundwater supplies
• Reduce flooding and drainage problems
• Provide wildlife habitat for birds, butterflies and beneficial insects

GREEN INFRASTRUCTURE
Green infrastructure reduces and treats stormwater at its source while delivering environmental, social, and economic benefits whereas conventional piped stormwater drainage systems (gray infrastructure) is only designed to move urban stormwater away from the built environment.

Green infrastructure techniques include:
Urban Trees, Bioretention, Green Roofs, Permeable Pavements, Rain Gardens, Bioswales, Rain Barrels and Cisterns, Land Conservation

WHAT YOU CAN DO
You can help manage stormwater runoff at home by using these techniques that collect, slow and spread rainfall to help in soak in closer to where it falls:
• Plant native trees that thrive on typical rainfall
• Redirect downsputs onto grasses areas
• Use decks, pavers or mulch to provide open spaces for rain to soak in
• Install and use rain barrels
• Establish rain gardens

Some Plants Used In This Bioretention Basin
- Unique Plant Name
- Unique Plant Name
- Unique Plant Name
- Unique Plant Name
- Unique Plant Name

This project is supported in part by the Arkansas Forestry Commission’s Urban Forestry Program and the U. S. Forest Service.
Upcoming for 2018

- Implement LID demonstration in Fayetteville
- Finalize pollutant path video media
- Complete match requirements

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Project Partners

- Engineering - Utilities
- Transportation & Public Works
- Parks and Recreation
- Office for Sustainability and Resilience
- GIS

Vendors

- Planning & Community Development (Engineering)
- Public Works
- Water Utilities