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This newsletter is a public service message brought to you by Roanoke County Department of Development Services. As regulated by federal and state laws, the County’s Stormwater Management Program must include public information strategies to encourage the prevention of stormwater pollution. For other publications or information on ways to prevent stormwater pollution, please call Cynthia S. Linkenhoker, Stormwater Program Manager, at 540-772-2036.



Storm Drain Stenciling Program

Stenciling storm drain inlets is an easy way to provide a visual reminder that stormwater goes, untreated, to nearby waterways. And, it is a direct and cost-effective project to remind people not to dump ANYTHING into the drainage system.

Volunteering to stencil storm drains offers an educational, pollution prevention activity with long lasting, positive impacts. Storm drain stenciling is a practical, positive, easy first step toward public education, involvement, and support. Stenciled storm drains will raise citizen awareness and educate the public about stormwater runoff and nonpoint source pollution.



Please Volunteer Today!

☐ YES, I am interested in stenciling storm drains in my community! How many people will be in your group? _____

Name: _____

Address: _____

Phone: _____ Email: _____

I prefer the following stencil:

☐

DUMP NO WASTE



DRAINS TO CREEK

☐

ONLY RAIN



DOWN THE DRAIN

☐

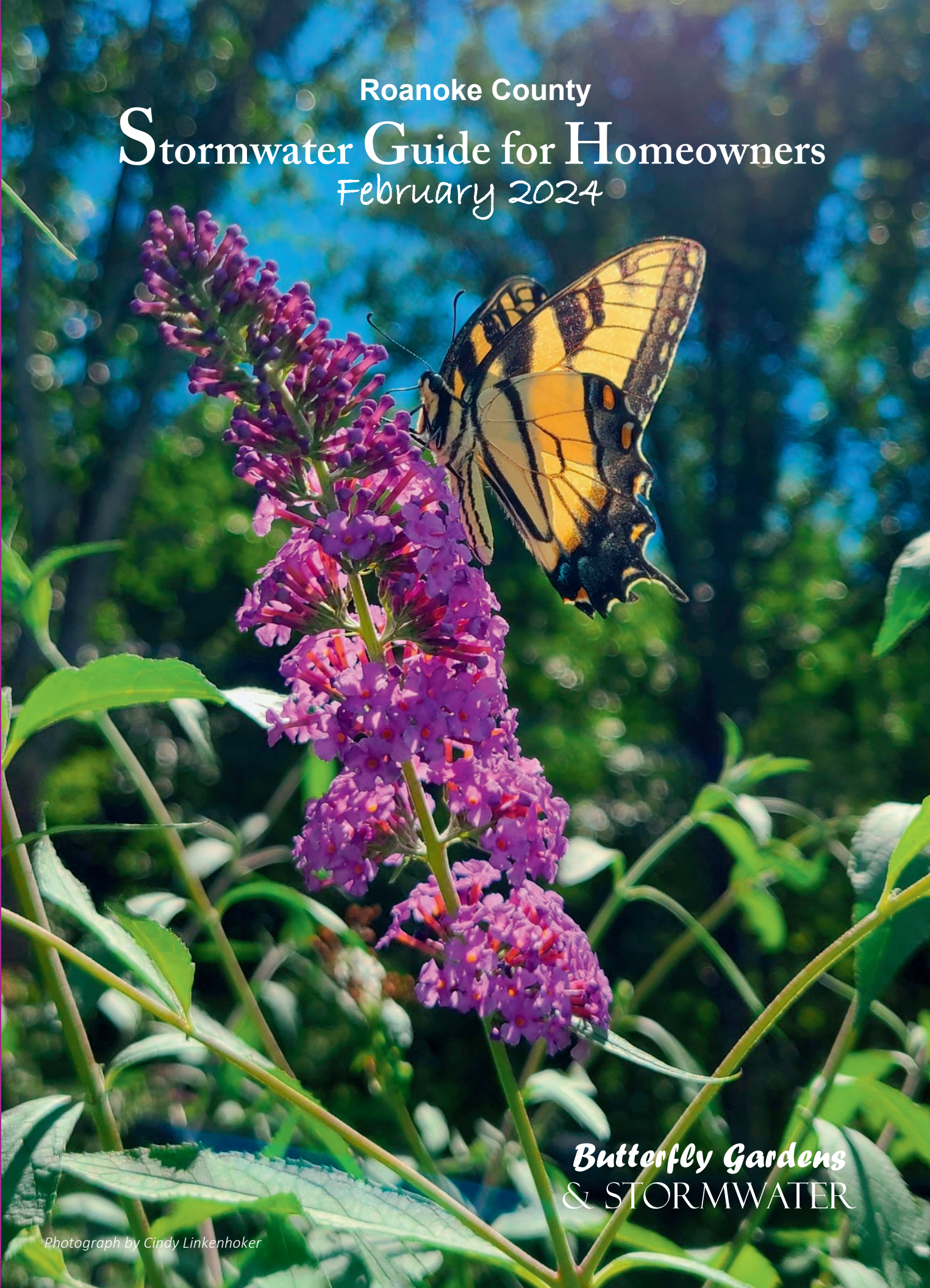
DUMP NO WASTE



DRAINS TO RIVER

Please Return Application to: Cynthia S. Linkenhoker, MPA - Stormwater Program Manager - Roanoke County - 5204 Bernard Drive, 2nd Floor - Roanoke, VA 24018

FEBRUARY 2024: Reducing Runoff with Butterfly Gardens / FREE Septic Pump-outs / Flood Preparation & More / Storm Drain Stenciling / 10th Edition



Roanoke County

Stormwater Guide for Homeowners

February 2024

Butterfly Gardens
& STORMWATER

Photograph by Cindy Linkenhoker

Beautify With Butterfly Gardens & Reduce Runoff

It is likely that most people do not think of planting butterfly gardens on their property as a way to reduce stormwater runoff. But, with a little planning and some effort, you can do just that! It is a win-win situation. Butterfly gardens can be quite lovely, which will spruce up your yard, and such gardens will readily soak up stormwater runoff while attracting beautiful butterflies.

The key to creating a successful butterfly garden is to create “a hospitable environment that will entice these delicate creatures to stay around long enough to lay eggs for a new generation. By providing the basics of **shelter**, **water**, and **food** (including butterfly-friendly plants), butterflies will have a better chance of thriving and reproducing,”¹ and your garden will also reduce runoff.

BASIC STEPS TO A BEAUTIFUL, SUCCESSFUL BUTTERFLY GARDEN¹

1. **Make a Plan** - Determine which species you want to attract and are most likely to be in your area. Purchase plants that will support those particular butterflies.
2. **Provide Food** - Adult butterflies rely mostly on liquid food sources. They drink through a long tubular tongue that uncoils to sip liquid. Along with flower nectar, they also consume tree sap, pollen, fallen fruit, and animal dung. Butterfly larvae have chewing mouth parts and feed on leafy food plants such as parsley, fennel, and milkweed foliage.
3. **Create Shelter** - Plant trees and shrubs where they will provide a windbreak and a place for butterflies to get out of the rain. These plants will also give places for butterflies to roost at night or hide from predators. Another source of shelter is a log pile, which you can hide out of sight in a secluded corner of the yard.
4. **Provide Water** - Butterflies prefer shallow puddles or moist sandy areas, which will also provide them with salts and essential minerals. Set out a birdbath or a plant saucer filled with water and rocks so butterflies can perch. Place the container in a visible spot and frequently change the water.
5. **Build the Garden in a Sunny Area** - Butterflies are cold-blooded insects that will be less active on colder mornings. Locate your butterfly garden in a sunny spot that receives at least 6 hours of sun each day. Make sure there is an area where sunlight hits early in the day so butterflies can quickly warm up. Pavement, rocks, or exposed soil will absorb heat, providing additional warmth.
6. **Plant in Drifts** - Group the same plants in drifts of 3-5 so that butterflies can more easily spot the larger swaths of color.
7. **Go Organic** - Don't use chemical fertilizers or pesticides, as they may harm butterflies and wildlife.



¹ Garden Design. <https://www.gardendesign.com/landscape-design/butterfly-garden.html>

Greenway Project Slated for Vinyard Park West

Roanoke County has been working with regional partners to design, permit, and construct a network of greenways throughout the Roanoke Valley for several decades. The greenway master plan was first drafted in 1995, and most recently updated in 2018. As part of this effort, Roanoke County submitted a final application for funding to the Virginia Department of Transportation (VDOT) in 2021 to build a greenway at Vinyard Park West. This segment of greenway will be built in cooperation with the Town of Vinton, and it will enhance the already popular Vinyard Park, which has a variety of fields for multiple sports and direct access to a stocked trout stream.

County Planning and Engineering staff developed the concept plan with VDOT, and VDOT's environmental staff provided environmental permitting support and coordination. County staff completed the survey and engineering design using in-house resources.

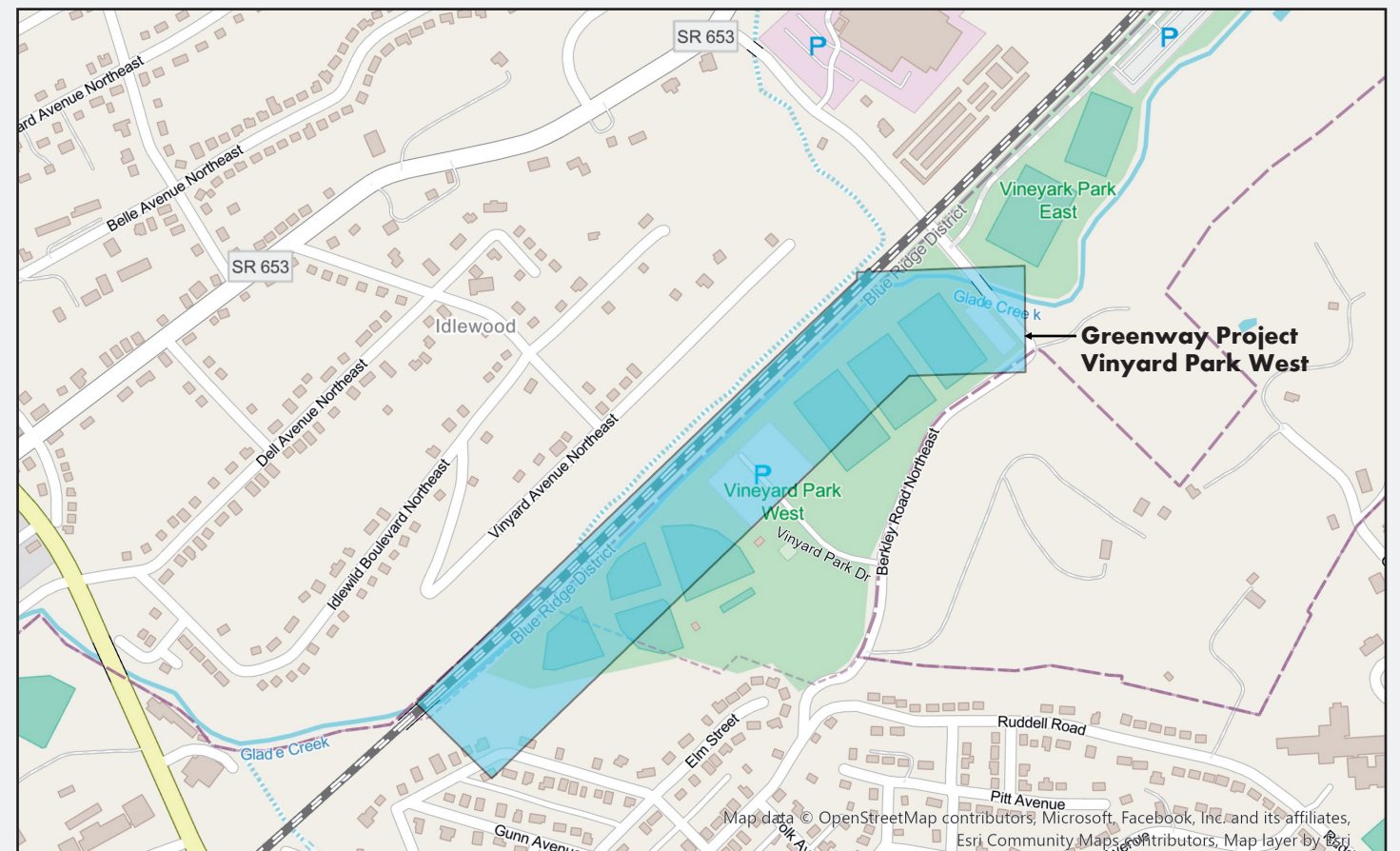
Because the project is completely on County-owned property, right-of-way acquisitions were not needed. The field survey captured existing terrain, drainage structures, and tree lines, including specific trees that will be cleared. The project area is home to a couple of

threatened and endangered bat species, so tree clearing will be minimized to the greatest extent possible.

VDOT and Roanoke County Parks, Recreation, and Tourism (PRT) staff approved the proposed alignment, as field-staked by the County's surveying staff.

The project is currently in the final stages of design and permitting. Advertisement for bids is expected in Spring 2024 with construction beginning in Fall 2024. The project will take approximately six months to complete. The new greenway will extend from the small parking lot near Berkley Road to the southwest end of the park. This shared-use path will be 10 feet in width. Wheelchair accessible parking will be added in the existing parking lots, along with timber guardrails and a stormwater Best Management Practice to manage the runoff from the impervious areas.

The Roanoke Valley Greenway Plan proposes greenway segments to the northeast and southwest of this project, which will provide regional connectivity to Vinton and to the Blue Ridge Parkway trails. The Vinyard Park West greenway will also provide an alternate transportation route when the master plan is fully executed.



FREE Septic Pump-Out Program

Roanoke County and the Roanoke Valley-Alleghany Regional Commission (RVARC) partnered using grant funds from the Virginia Environmental Endowment to provide a septic tank pump-out program at no cost for qualified Roanoke County residents.

This grant-funded program aims to reduce the environmental impacts and property damage caused by failed septic systems. Septic systems that have not been maintained are a possible source of nutrient and bacteria pollution that may lead to stream impairments across Roanoke County. Septic systems that fall into disrepair can back up into homes or overflow into yards, creating costly issues for homeowners.

Households with an annual income at or below 200% of the Federal Poverty Line are eligible to apply for this program. Qualifying residents are encouraged to attend an educational workshop, where they can apply for the free pump-out during the event. **The next workshop will be held on Saturday, March 9, 2024 at Vinton Library from 11:00 a.m. - 1:00 p.m. Please call 540.343.4417, ext. 308, to sign up.**

How Your Septic System Works

- Septic systems are designed to treat household wastewater on-site for homes without connection to a centralized wastewater treatment system.
- Learn more with this animated, interactive model of how a household septic system works created by the **Guadalupe-Blanco River Authority**.
- Additional information about septic systems can be found on the **Environmental Protection Agency (EPA) website** or from Roanoke County's **Stormwater Management** web-page.
- See Roanoke County's Stormwater Newsletter from **June 2021 (page 4)** for an article about the importance of septic system maintenance.

Benefits of Septic System Maintenance

Keeping your septic system maintained benefits your household, your community, and the environment. Have your septic system inspected every 1-3 years and pumped every 3 to 5 years, depending on use. This will help prevent your system from falling into disrepair and causing costly fixes. More information can be found on the Virginia Department of Health's **Environmental Health** website.



FREE

SEPTIC PUMP-OUTS

Apply for your free five-year pump-out today! Qualified applicants will be contacted to schedule their appointment.
For more information, call 540.343.4417 ext. 308.



SCAN ME



<https://www.roanokecountyva.gov/2963/Septic-Pump-Out-Program>



NEXT WORKSHOP: Saturday, March 9, 2024 at Vinton Library from 11:00 a.m. - 1:00 p.m.

The HEART of Roanoke County is. . .
The "RIVAH"



The
Roanoke River

Keeping the Roanoke River pollution-free is vital to the well-being of the localities through which it travels, especially Roanoke County. Why? A healthy river helps maintain the quality of life that residents have come to expect; provides safe water-related recreational opportunities; attracts nature-loving tourists; keeps wildlife healthy; and supports the vital local industries that depend on it.

Keep it CLEAN

- Limit lawn fertilizers.
- Contain trash and litter.
- Throw NOTHING into a storm drain.
- Bag pet waste, then put it in a trash can.
- Cover bare dirt with mulch, or seed/straw.
- Bag or compost leaves and grass clippings.
- Apply absorbent materials to oil leaks or spills.
- Remove leaves from roadside gutters and swales.

Preparation 2023: *Be* **READY**



Roanoke County staff participated in the regional 2023 Preparation hosted by the City of Roanoke. The event was held on September 16, 2023 from 10:00 a.m. until 2:00 p.m. at the Berglund Center Coliseum on Williamson Road. The event allowed local vendors and localities to showcase their organization and to educate the public on flood and emergency preparedness and recovery.

One major theme of the event was to encourage residents to *be ready* for potential disasters, including floods, hurricanes, pandemics, and more.

The Federal Emergency Management Agency (FEMA) plays a major role in helping citizens to “be ready” by encouraging them to know what disasters/hazards could affect their area, how to get emergency alerts, and where to go if they need to evacuate. FEMA encourages families to have a plan and to practice it often.

To learn more about how to be ready, see FEMA’s 12 ways to prepare, as shown on the next page.



The County's Stormwater Inspector, Michelle Donoboe, participated in Roanoke City's Preparation, held on September 16, 2023 at the Berglund Center. She used the 3-D EnviroScape model to demonstrate how clogged storm drainage systems may exacerbate street and house flooding during heavy rain events.



12 WAYS TO PREPARE



**Sign up
for Alerts
and Warnings**



Make a Plan



**Save for a
Rainy Day**



**Practice
Emergency
Drills**



**Test Family
Communication
Plan**



**Safeguard
Documents**



**Plan with
Neighbors**



**Make Your
Home
Safer**



**Know
Evacuation
Routes**



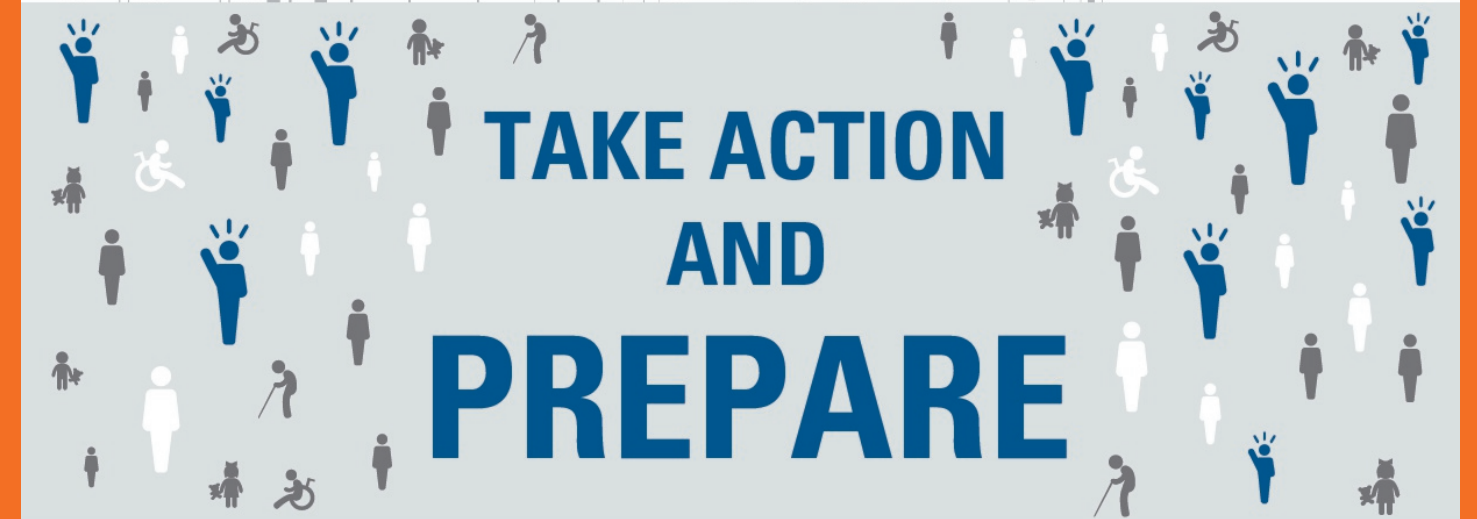
**Assemble or
Update
Supplies**



**Get Involved in
Your Community**



**Document and
Insure Property**



**TAKE ACTION
AND
PREPARE**



FEMA

FEMA V-1021
Catalog No. 1872-3

April 2018

There are many ways to take action and prepare before a disaster occurs. The actions on this card include some of the most important ways to help yourself, your family, and your community increase your preparedness. Simple actions at home and in your neighborhood can make a big difference!

- @Readygov
Twitter.com/readygov
- @Readygov
Facebook.com/readygov
- Fema.gov/mobile-app
- Ready.gov/prepare

¹ FEMA. Ready.gov. Preparing for Disaster. <https://www.fema.gov/pdf/library/pfd.pdf>

Stormwater Management Facility (SWMF) Maintenance

If your neighborhood has a stormwater management facility to which the subdivision’s stormwater runoff is designed to drain, there is a good chance that your Homeowners Association holds the responsibility to keep that facility maintained. In some very rare cases, an individual homeowner may be responsible to maintain a specific SWMF, likely located on their own property.

Of course, the question immediately comes: “What is required for SWMF maintenance?” And, the answer is: “it really depends on the type of SWMF.” There are 705 private SWMFs across the County, and 52.3% of them are classified as “dry” detention ponds. Such facilities temporarily impound water after a storm event but are otherwise dry.



The County created a helpful booklet, entitled “*Maintaining Your Stormwater Pond or BMP - A Practical Guide for Private Owners of Stormwater Facilities in Roanoke County, Virginia.*” This document can be accessed on the County’s stormwater web-page at [SWMF Maintenance Guide](#), and it includes pertinent maintenance guidance for the following types of SWMFs:

- Dry Detention Ponds
 - Wet Detention Ponds
 - Infiltration Practices
 - Bioretention Practices
 - Sand Filter Treatment
- Constructed Wetlands
 - Vegetated Filter Strips, Grassed Swales, and Water Quality Swales
 - Pervious and Permeable Surfaces
 - Manufactured BMP Systems
 - Underground Detention Ponds

All of these SWMFs are designed and constructed to reduce the impacts of increased stormwater runoff associated with land development. Such impacts include an increased amount of runoff from impervious surfaces and an increased amount of pollutants that are picked up and carried to nearby waterways by the stormwater runoff. Thus, SWMFs are an essential part of Roanoke County's efforts to restore and maintain the critical habitats of the Roanoke River and its tributaries.

What is a Dry Detention Pond?

A dry detention pond is an excavated ponding area that has been designed to detain water for a specific period of time (usually 36-72 hours) after a storm. Water flows into the dry pond, which will hold the water back and then slowly release it. The outlet of the pond is a critical component because its size controls the speed at which the water will be released.

If water persists in a dry pond for extended periods, then it is likely not properly functioning. However, some dry detention ponds do contain a small permanent pool of water to incorporate a wetland marsh area. A wetland area may improve the removal of pollutants from the stormwater before it exits the pond; this type of pond is called an *Enhanced-Extended Detention Basin*.

Most dry detention ponds do not have a permanent pool of water. They are designed to be wet for short periods after a storm, as mentioned above.

If you see standing water in your pond, it is important to determine if it is there by design or if it indicates a need for maintenance.

How to Maintain a Dry Detention Pond?

Maintenance Activities	Suggested Frequency
Mow side slopes.	Twice during growing season, and as needed during off season.
Remove accumulated trash and debris from the basin and from around the riser pipe, side slopes, embankment, emergency spillway, and outflow trash racks. The frequency of this activity may be altered to meet specific site conditions.	Quarterly, or more frequently, as needed.
Manage pesticides and nutrients.	Annually.
Trim woody vegetation at the beginning and end of the wet season to prevent establishment of woody vegetation and for aesthetics and vector (mosquito) control.	Semi-annually, or more frequently, as needed.
Repair undercut or eroded areas.	Annually.
Control vectors (mosquitoes) by eliminating ponding areas.	Annually, as needed.
Keep access road clear of obstructions and woody vegetation.	Annually.
Seed/mulch or install sod to restore dead or damaged ground cover.	Annually, as needed.
Monitor structural components (pipes, riser structures, orifice plates, or energy dissipaters) for signs of deterioration such as cracks, sink holes, and separation.	Annually, as needed.
Repair erosion to banks and bottom, as required.	Annually, as needed.
Supplement wetland plants if a significant portion of the wetland area has not been established (at least 50% of the surface area).	Annually, as needed. (Enhanced-Extended Detention Only)
Remove nuisance or invasive plant species.	Annually, as needed
Remove sediment from forebay to reduce the frequency of main basin cleaning.	Annually, as needed, if applicable.
Remove accumulated sediment and re-grade about every 10 years, or when the accumulated sediment volume exceeds 10-20% of the basin volume, or when accumulation reaches 6 inches, or if re-suspension is observed. Clean in early spring so vegetation that is damaged during cleaning has time to re-establish.	Every 10-25 years, as needed.

For detailed maintenance schedules of other types of SWMFs, see the County’s [SWMF Maintenance Guide](#).

Marvels of “The Rivah”

The Roanoke River is home to some extraordinary fish species that are currently endangered: the petite and vibrant Roanoke Logperch, the dazzling Roanoke Bass, which has the ability to change colors as a form of camouflage, and the Roanoke Hog Sucker, a unique fish with a sucker-shaped mouth adapted for bottom-feeding. While these small fish may seem

Roanoke Logperch (*Percina rex*)

Fascinating Facts:

The Roanoke Logperch is a petite freshwater jewel, spanning in size from 3-6 inches. It is adorned with vibrant colors of iridescent blues and greens to warm yellows and oranges. With a slender body and graceful movements, this tiny marvel of a fish navigates the river currents with agility, embodying aquatic elegance.

Habitat:

The Roanoke Logperch is found in clear, flowing waters with gravel or sandy bottoms, and it thrives in diverse habitats, seeking refuge among submerged rocks and vegetation, where it contributes to the river's dynamic ecosystem.

Critical Threats:

The Roanoke Logperch currently faces challenges in the Roanoke River basin from habitat destruction, water pollution, and invasive species. Remarkably, this fish serves as a living indicator, reflecting the river's overall health. If this fish is failing, the river’s health is declining.

Roanoke Bass (*Ambloplites cavifrons*)

Fascinating Facts:

The Roanoke Bass is a small but significant freshwater dazzler celebrated for its unique markings and vibrant colors. It ranges in size from 6-14 inches. Notably, the Roanoke Bass possesses the remarkable ability to change colors based on its environment, camouflaging itself to seamlessly blend in with the riverbed or vegetation to elude predators or ambush prey. Unique patterns and markings on each Roanoke Bass serve as a signature, distinguishing individuals within the population.

Habitat:

The Roanoke Bass thrives in the Roanoke River's diverse habitats, favoring slow-flowing pools, backwaters, and rocky areas with submerged cover, contributing to the river’s overall biodiversity.

Critical Threats:

The Roanoke Bass is facing challenges in the eastern United States from habitat loss, pollution from industrial activities, and climate change that jeopardize its populations.

inconsequential, they are truly unique little marvels that often serve as living indicators of the river's overall health.

Discover the wonders of the Roanoke River's endangered fish and join in the efforts to preserve their habitats. It’s easy, just practice the Leave No Trace principles shown on the next page.

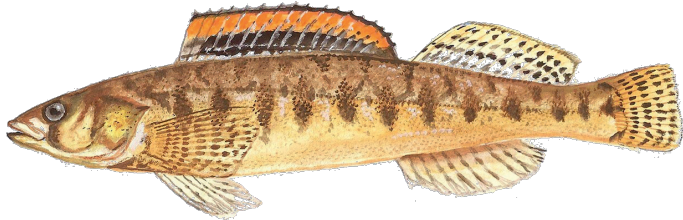


Photo Courtesy of N.C. Wildlife Resources Commission¹

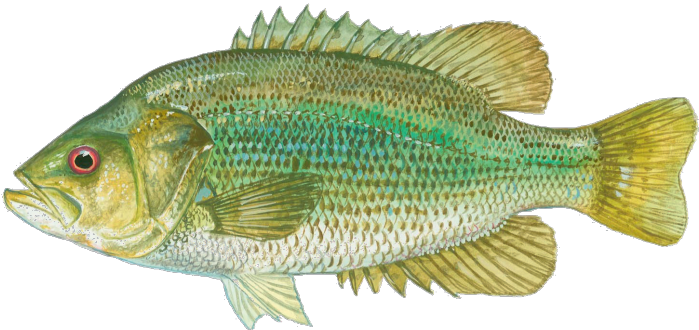


Photo Courtesy of N.C. Wildlife Resources Commission²

Roanoke Hog Sucker (*Hypentelium roanokense*)

Fascinating Facts:

The Roanoke Hog Sucker is a freshwater fish ranging in length from 2-6 inches. It is distinguished by its strong sucker-shaped mouth, which is well-adapted for bottom-feeding on aquatic insects, algae, and small invertebrates.

Habitat:

The Roanoke Hog Sucker thrives in the Roanoke River's shallow, rocky areas with moderate to swift currents. Its sucker-shaped mouth allows it to efficiently forage in the substrate, contributing to the river's overall ecological balance.

Critical Threats:

Sedimentation, channel modification, and instream barriers pose threats to the Roanoke Hog Sucker's survival.



Photo Courtesy of N. Burkhead, USGS¹

Next time you are outside enjoying Mother Nature, think about these magnificent fish and be mindful of their fragile habitat. Follow the **Leave No Trace** principles shown below to preserve the Roanoke River’s delicate ecosystem and the well-being of its endangered species. By protecting “The Rivah” and the little marvels that swim within her waters, you will also protect the beautiful natural environment in which you live.

LEAVE NO TRACE Principles for Endangered Fish Conservation		
Plan Ahead and Prepare		Before visiting natural areas, review the information in this article to identify the habitats associated with the Roanoke Logperch, Roanoke Bass, and Roanoke Hog Sucker. Avoid these sensitive areas or minimize impacts to them.
Travel and Camp on Durable Surfaces		Stay on established trails and paths to avoid disturbing sensitive habitats along the Roanoke River. Always set up tents/campers on durable surfaces provided at campsites.
Properly Dispose of Trash & Pet Waste		“Pack it in, pack it out.” Carry out all trash, litter, and pet waste, leaving nothing behind that could harm the sensitive habitats of these endangered fish.
Leave What You Find		Refrain from collecting plants, rocks, or artifacts from the forests and the river to preserve Nature’s delicate balance. It is best to “take only pictures, leave only footprints.”
Minimize Campfire Impact		Use established fire rings where campfires are allowed to minimize “dead zones.” Once vegetation is destroyed, soil erosion leads to harmful sedimentation into nearby waters.
Respect and Do NOT feed Wildlife		Refrain from feeding wildlife, as it can disrupt their natural behaviors and bring unwanted critters into your campsite or too close to your home. Also, feeding wildlife may lead to their dependency on human-provided food.

¹N.C. Wildlife Resources Commission. <https://www.ncwildlife.org/Learning/Species/Fish/Roanoke-Logperch>
²N.C. Wildlife Resources Commission. <https://www.ncwildlife.org/Learning/Species/Fish/Roanoke-Bass>

¹N. Burkhead (U.S. Geological Survey). <https://nas.er.usgs.gov/queries/FactSheet.aspx?SpeciesID=2905>