



STORMY DAY REVIEW

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Stormwater Conscious Ice Melting Tips

Slick driveways, roads, and sidewalks pose a significant fall and accident risk. Keeping these areas free of ice and snow is essential. Improper use of ice melt can have broad negative impacts on streams, property, groundwater, plants, and wildlife.

It is essential to make smart choices when choosing deicers and their application. The over-application of ice melt can lead to costly damage to cars, roads, and bridges. Deicing salt will run off hard surfaces and enter streams. This can be especially dangerous if the deicer contains chloride or urea. The chlorine present in some types of salt can contaminate ground/drinking water. The deicer running on to the ground will salt the earth, harming plant growth. Animals can also be harmed by the disruption of habitat, mistaking the salt for seeds, and the salt can dry and crack paw pads!

What to Do

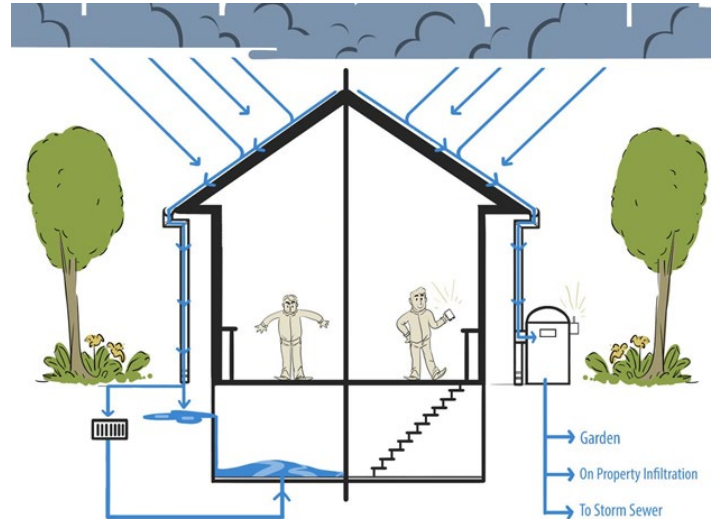
- SHOVEL AND SWEEP AWAY SNOW IMMEDIATELY AFTER AN EVENT TO MINIMIZE ICE
- SPREAD SAND, COFFEE GROUNDS OR BIRDSEED TO INCREASE TRACTION.
- WEAR BOOTS WITH TREADS TO GET A BETTER GRIP
- NOT ALL ICE MELTING PRODUCTS ARE THE SAME, USE BIO-FRIENDLY PRODUCTS WITH THE ACTIVE INGREDIENTS OF ALFALFA MEAL OR SUGAR BEET JUICE

What to Avoid

- **AVOID OVER SALTING.** THE APPLICATION AMOUNT USUALLY IS 1 HANDFUL PER SQUARE YARD AND 1 HANDFUL PER 3 SQUARE YARDS FOR DEICER CONTAINING CALCIUM CHLORIDE.
- AVOID PRODUCTS WITH UREA, POTASSIUM CHLORIDE, KITTY LITTER, AND ASHES

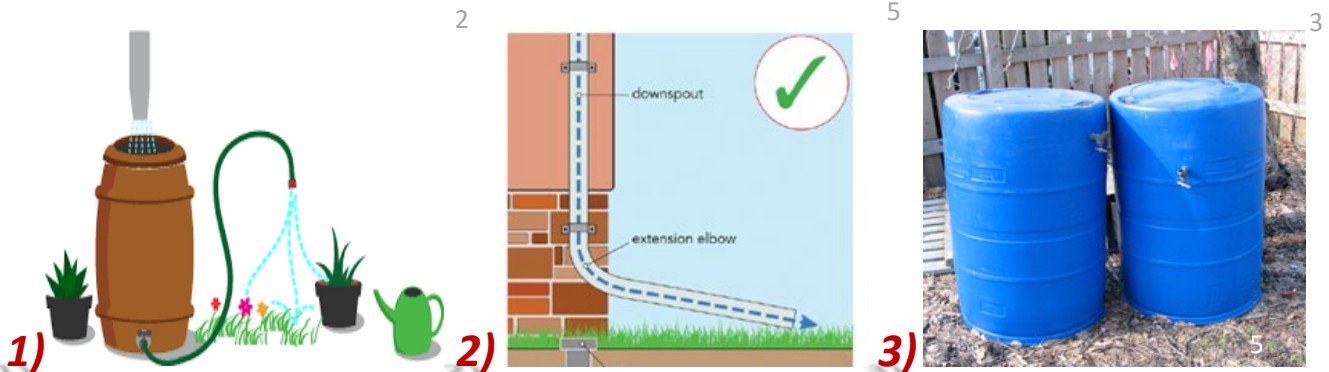
Preparing Rain Barrels for Freezing Temperatures

Rain barrels have many benefits for your home and stormwater system. Rainwater collection barrels installed on an average sized home can capture up to 1,300 gallons of water during the growing season. This can save money and energy. Studies show that rainwater is more beneficial to plants and soil than tap water. Rain barrels reduce the amount of stormwater runoff which reduces the pollution running into our beloved streams and rivers. Rain barrels can also help control moisture levels around the foundation of homes. Most Missourians have experienced a leaky basement whether it be their own or someone else, rain barrels can help mitigate this problem. To maintain working rain barrels, the barrels must be winterized.^{1,5}



Freezing water in the barrel can damage the spout and other components limiting the lifespan of the rain barrel. Here are three simple steps to winterize your rain barrel.

- 1. Empty your rain barrel of water, use the water on your yard or garden**
- 2. Disconnect your rain barrel and connect an external downspout to direct the water away from the foundation of the house and into the yard.**
- 3. Cover or flip your rain barrel over to prevent more water from entering the rain barrel.¹**



Stormwater's Lightning Strike Highlight:

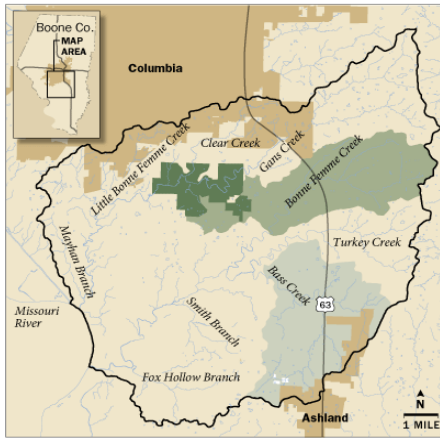
Getting to know the Bonne Femme Watershed Project with Lynne Hooper



BONNE FEMME WATERSHED PROJECT

The Bonne Femme Watershed Project is a multifaceted plan to address stream-related issues in the Bonne Femme and Little Bonne Femme watersheds. The watersheds cover 15 percent of Boone County, including parts of Columbia and Ashland.

KEY: □ Bonne Femme Watershed Project area
 ■ Rock Bridge Memorial State Park
 ■ Devil's Icebox recharge area
 ■ Hunter's Cave recharge area



Source: TERRY FRUEH, BOONE COUNTY PLANNING AND BUILDING

ALISON FONTE/Missouri

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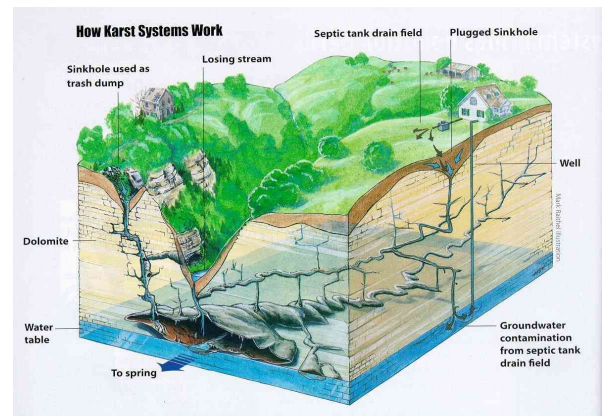
The Bonne Femme watershed lies entirely within Boone County. Portions of the watershed are in the village of Pierpont, the cities of Columbia and Ashland. This watershed contains a variety of unique natural resources which support many inhabitants from people to wildlife and farm animals. It serves as the foundation for living. Notable features include Rock Bridge Memorial State Park and Three Creeks Conservation Area. These areas contain many novel ecosystems. Devil's Icebox, located at Rock Bridge Memorial State Park is home to an extraordinary animal, the Pink Planarian, and it cannot be found anywhere else in the world!

The initiation of the Greater Bonne Femme Watershed Project (GBFW) began in 2001 when the directors of the Missouri Departments of Conservation and Natural Resources instructed the protection of the streams in GBFW. Five of the streams in GBFW are currently on the Department of Natural Resources list of impaired streams for having *E. coli* bacteria. An impaired stream is a stream that is not able to provide the functions it should due to pollution exceeding the water quality threshold. A Watershed Management Plan was adopted by Boone County and the City of Columbia in 2007 to address the impairments of the streams. With urban development increasing in the region, it is essential to restore these streams and protect others in the watershed. Stream impairments and watersheds can sound abstract making it tricky to understand what it all means. It can also be hard to grasp the impact a few people working together can have on our waterways.

Lynne Hooper is Boone County's hydrologist. A goal she has been working on during her time with the County is addressing these five impaired streams along with the rest of the GBFW. Lynne is the project manager for the Bonne Femme Watershed Project. She leads the Technical Advisory Team that consists of representatives from many different agencies. Wanting to learn more about the project I went to Lynne. Lynne highlights the needs of the project, where it stands, and what the community can do.

What are some of the reasons people in Boone County should be interested in improving and maintaining the watershed?

Lynne expressed how the watershed is full of unique natural resources for the community that is closely tied into the watershed. Karst systems allow for contaminants to move quickly from the land. This creates a potential problem for the people who get their drinking water from wells. Karst structures are identified by caves and sinkholes allowing water to pass quickly into the aquifers highlighting the importance of how we manage our watershed.



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What is the goal of the GBFW project?

The primary goal of the project is to get the streams to a healthy state where they are off the list of impaired streams!



Rock Bridge Cave

Any Exciting developments?

Boone County was just awarded a subgrant to develop an EPA based nine element watershed-management plan! The plan will help protect and improve the water quality within the watershed. The community has significantly grown and changed over recent years. An updated plan will be better suited for the current environment. The plan will address the nine elements identified by the EPA. It will have best management demonstration projects, focus on information and outreach, comprehensive regular monitoring of the streams, and will create a model of the watershed to have a better understanding of how pollution can be managed now and in the future.

How has the project been able to find the source of pollution?

Exactly where the bacteria are coming has been a question over the years. To find the answer, genetic testing is being conducted on the bacteria in the stream to help identify the animal source of the bacteria. By knowing where the bacteria are coming from, resources can be more directly targeted to address the problem!

What is the future direction of the project?

There is an important balance that needs to be established between development and protecting our natural resources. The plan seeks to live within this balance by improving the watershed and people's understanding and interest in the watershed while still allowing for development.

How can people in the community help with the project?

Community members who live in the Bonne Femme Watershed can make an incredible difference by adopting best management practices. There are many ways for a person who lives in the watershed to have a positive impact. For example, they can plant rain gardens, start using rain barrels, and make sure their septic system is functioning properly. A person owning agricultural land can have a tremendous impact on the watershed, the use of best management practices can have significant positive effects on the streams. Examples of these practices are keeping livestock out of waterways and using cover crops on fields during nonproduction seasons. People who do not live in the watershed can help the project by coming out and volunteering during stream clean-up events, for the Monitoring Blitz in the fall and the spring, and spreading the word about the project.

UPCOMING EVENTS

November 12, 2018

Invasive Plant Workshop: Boone County Extension Center

November 12, 2018

Rivers Run Through Us, Science Café Columbia

November 17, 2018

Last hazardous waste collection of the year in Columbia at 1313 Lakeview Columbia, MO 65201

January 1, 2019

First Day Hike at Rock Bridge

January 31, 2019

10th Annual Agroforestry Symposium: Innovation to Entrepreneurship: Fostering a Culture of Research Translation

Stormwater Fact

"The impervious surface of a city block can generate five times more runoff than a wooded area of the same size"

Stormwater Educator

Hello! I am honored to begin my role as the Stormwater Educator for Boone County.

My passion for water conservation started while participating in Stream Team in high school. I received an Interdisciplinary Studies degree in Environmental Sciences from Truman State University in Kirksville, Missouri. During college, my interest expanded and as a result, I helped initiate a restoration project for Bear Creek, which flows through the campus of Truman State. Since graduation, I have been a lab technician monitoring the water quality at the wastewater treatment plant for the City of Columbia and recently began working toward a graduate certificate in Agroforestry at the University of Missouri. I am excited to work with the citizens of Boone County to spread knowledge about stormwater!

If you have any questions or if you have ideas how Boone County can further our goals of education or a program you would like for me to teach, please always feel free to contact me by phone (573-866-4389) or email Mwoolbright@boonecounty.org.



Sincerely, Michele Woolbright

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Quick Quiz

Take this quick quiz and return it to Michele Woolbright in Resource Management or email your answers to Mwoolbright@boonecountymo.org by December 1. Participants can win a Starbucks gift card and travel mug!

- 1) What can you do to keep from using large amounts of ice melt? _____
- 2) What is the second step for winterizing rain barrels? _____
- 3) What is a benefit of using a rain barrel? _____
- 4) What is the main type of rock system under the Bonne Femme Watershed _____
- 5) One city block can generate how many times more runoff compared to a wooded area of the same size?

a. 1 b. 5 c. 15 d. 2