

# Watersheds & Waterways Newsletter

## A Note from the Program Coordinator



With continued increase of producers using conservation practices, we have seen increased enrollment in our cost-share program in the Squaw Creek Watershed; with two denitrifying bioreactors in progress, about 2,000 acres of cover crops and over 3,100 acres of no till/strip till scheduled for this fall. We still have availability for cost-share funds for both management practices and edge-of-field practices, so if you farm or own land in the Squaw Creek watershed, please contact us to get signed up!

The Prairie Rivers of Iowa Watersheds and Waterways Program staff have been hard at work this summer. Our educational campaign has reached roughly 470 adults and 130 children in person and through events.

I encourage you to attend any of our future events and find out what you can do to help improve water quality. The first step is awareness! Stay informed about your local watershed and opportunities to get involved.

Sincerely,

Kayla Bergman,  
Watersheds & Waterways Program Coordinator



## Bioreactors: A Crucial Practice in Nutrient Reduction for Iowa

By Kayla Bergman

On a warm summer evening in July, landowners, farmers, and community citizens gathered together at Iowa State's Field Extension Education Laboratory to learn what they can about the benefits and a little science behind denitrifying bioreactors. A denitrifying bioreactor is a subsurface trench at the edge of a field usually filled with hardwood chips, installed to reduce nitrate concentration in the tile water that it diverts. The wood chips are the carbon source that contains the bacteria needed to breakdown the nitrates in the water to convert into nitrogen gas.

The participants were able to see a bioreactor in action and heard from Iowa Learning Farms expert, Liz Juchems about the benefits to having a bioreactor and how it can help in the effort to improving water quality. She explained that using bioreactors alone in the state in all of the identified appropriate areas would reduce the nitrates that end up in our waterways by 43%, which exceeds the 41% goal of the Iowa Nutrient Reduction Strategy.

Jace Klein, agriculture engineering technician, spoke about the process of designing and implementing a bioreactor, "Tricky part of bioreactor installation is finding the tile outlet. Good tile maps are the unicorn

of the Midwest." Klein also went on to explain that bioreactors can remove up to 90% of the nitrates in the water but in cases of large amounts of rain, the water will bypass and the bioreactor will only treat around 50% of the total water.

Local landowner, Joe Reutter, spoke about his experience with the bioreactor that was implemented 8 months ago in Boone County. Results showed inflow of water at 15 ppm (milligrams per liter) nitrates and outflow of water at 3 ppm (milligrams per liter) nitrates. That is an 80% reduction of nitrates! Joe took advantage of one of the cost-share opportunities provided by Prairie Rivers of Iowa that we offer!

Every conservation practice we implement is another step in the right direction to build soil health and is slowly but surely improving water quality not only in our local streams, but the entire South Skunk Watershed and beyond!

Please visit Prairie Rivers of Iowa's website on our Water Quality Initiative project or visit [covercropsnow.com](http://covercropsnow.com) to learn about the opportunities to get involved in our programs.

### Reminder for Farmers



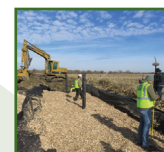
**Cover Crops**  
\$25/acre available for cost-share



**No Till**  
\$10/acre available for cost-share



**Strip Till**  
\$10/acre available for cost-share



**Bioreactors**  
Up to 75% available for cost-share



**Saturated Buffers**  
Up to 75% available cost-share

Contact Kayla today at  
[kbergman@prrcd.org](mailto:kbergman@prrcd.org) or  
515.232.0048



# Soil as Sponges

By Dan Haug

Soils that are rich in organic matter act like sponges, soaking up heavy rains rather than allowing water to pond or run off the surface. By reducing runoff, healthy soils prevent sediment, nutrients, and other pollutants from washing into lakes and rivers. A spongy soil can also hang on to more water after the excess has drained, helping sustain crops through dry periods. Healthy soils can help reduce the negative effects of both floods and droughts, benefiting crops and downstream communities. Healthy soils can also



be sponges for carbon dioxide in the atmosphere, with the potential to help prevent destructive climate change by storing more carbon in the form of organic matter.

How much water can healthy soils soak up? A lot! Research by Tom Kaspar and others at the ISU Boyd Farm in Boone County reported a 65% reduction in runoff from a simulated rainfall in field plots with a history of cover crops. Another study at the same site by Andrea Basche, Tom Kaspar and others found that cover crops increased plant available water in the top 30cm of the soil by 21-22%.

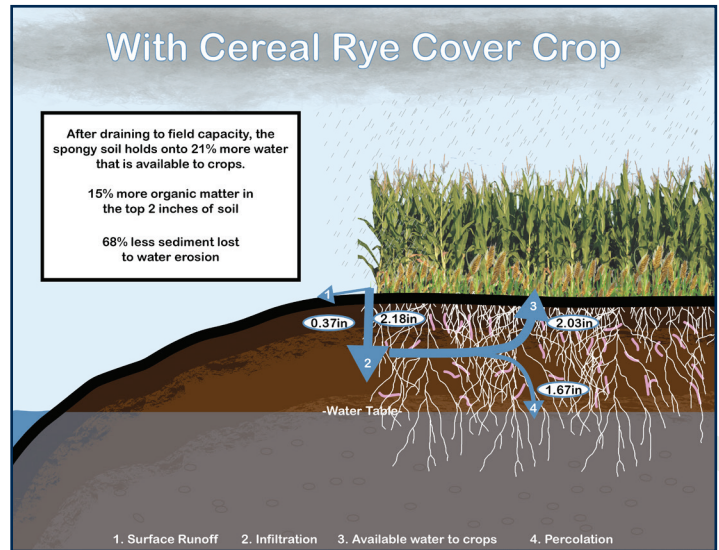
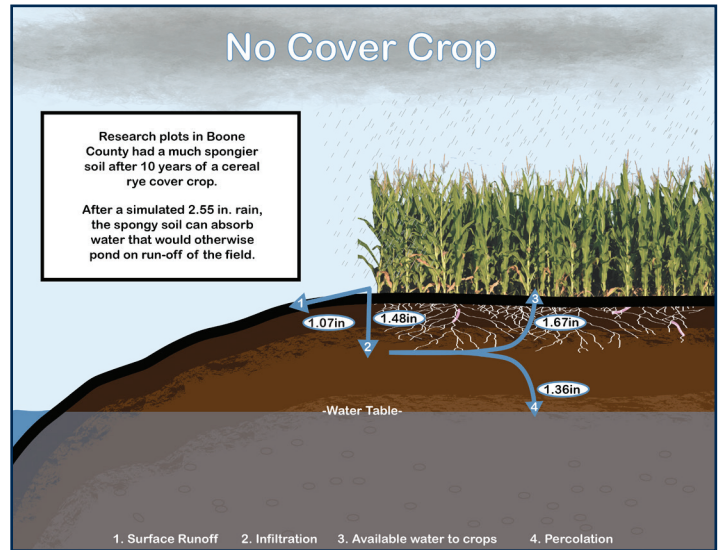
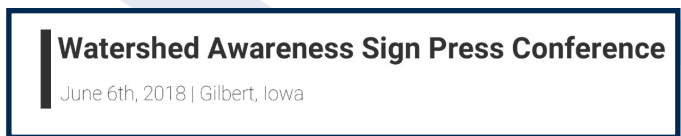


Diagram 1 & 2: Prairie Rivers of Iowa "Soil as Sponges" campaign.

Check out some of our recent videos on our YouTube channel: [YouTube.com/PrairieRiversofIowa](https://www.youtube.com/PrairieRiversofIowa)



Prairie Rivers of Iowa



@priwatershed



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# Watershed Signage

By Dan Haug

On June 6, the first of 52 watershed signs that was installed this summer on Story County roads was unveiled. Another 105 signs label creeks at bridges. As you drive around Story County this fall, we hope you will have a renewed appreciation for its many creeks and rivers. Watershed signs will help make visible the subtle divides between watersheds and get people thinking about the connections between land stewardship and water quality.

Pictured here are representatives from the organizations that made this project possible: the Story County Board of Supervisors, Story County Conservation, the Story County Community Foundation, and the Story County Soil & Water Conservation District. Watch the video on our YouTube channel from the June 6 press conference to hear from these organizations and learn more about the project.

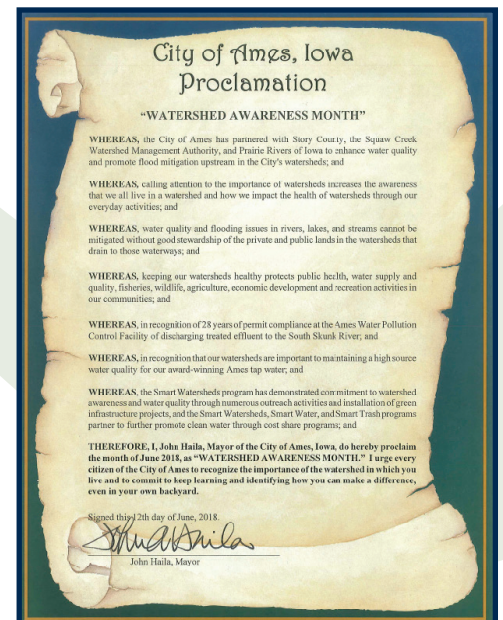
Similar efforts around the state have helped to draw attention to our water resources and spur interest from landowners in conservation practices, but Story County's effort is perhaps unprecedented in scale, and one of only a few projects to mark watershed boundaries in addition to creek crossings.



Left to right: Mike Cox (Story County Conservation), Dana Holland (NRCS/ Story SWCD), Jerold Fitzgerald (Story SWCD), Rick Sanders (Story County Board of Supervisors), Dan Haug (Prairie Rivers of Iowa), Jim Pease (Story County Conservation Board), Tillie Good (Story County Community Foundation), Sonia Arellano-Dodd (City of Gilbert), Penny Brown Huber (Prairie Rivers of Iowa)

## Watershed Awareness Month

Story County Board of Supervisors and Conservation Board proclaimed June 2018 to be Watershed Awareness Month. Over the rest of the month of June, the cities of Ames, Nevada, Stanhope, and Gilbert made similar proclamations. We applaud their commitment to water quality!





# Local Leaders Tour

By Kayla Bergman

Along with a quarterly formal business meeting, the Squaw Creek Watershed Management Authority Board visits a site in the watershed to learn more about practices that improve soil health and water quality.



The Squaw Creek Watershed Management Authority Board is comprised of a representative from the cities, counties, and soil & water conservation districts in the Squaw Creek Watershed. These are representatives from the cities of Stanhope, Stratford, Gilbert, and Ames; the county board of supervisors from Boone and Story County; and the soil & water conservation districts in Hamilton, Boone, and Story County. Although it is common misconception of the word 'authority' in their title, the group acts as more of an alliance of communities and counties coming together to support each other in their efforts in water quality improvement.

July's quarterly meeting offered a glimpse at an uncommon site in Hamilton County - a dairy cow herd. Kevin and Ranae Dietzel operate their dairy herd business, called Lost Lake Farms, that they started in 2012 using an intensive rotational grazing management style. This management

style is designed as daily or twice-daily movement of fencing through paddocks of perennial and annual grasses. This helps the cattle have a great food source without trampling the area too much, which would cause soil compaction and domination on less-desirable plant species. Kevin and Ranae use the milk produced from their cattle to make cheese, which they sell on their website and at local farmer's markets.

The group observed Ranae moving the 20-cow herd to another section of Sudangrass while Kevin explained the operation and the importance of conservation in a farming operation. They use no-till, extended crop rotation, no synthetic fertilizer (their cattle do the fertilizing), and use perennial plants with long roots on a lot of their acres. These practices help build their soil health and minimize their impact on adjacent water bodies.



Bringing the group together to not only communicate and collaborate on their community's work in watersheds, but to actually view the kinds of things that are going on in the watershed is essential for great leaders focused on improving soil health and water quality for their citizens.

## Our Team in Action This Summer!



## Meet the Watersheds & Waterways Program Staff



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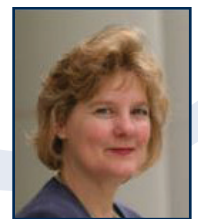
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