

Johnson Co. SWCD

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Clear Creek Watershed—Upcoming Events

Iowa Water Conference — Virtual

April 6th—8th, 2021

9:00 am—5:00 pm

The Iowa Water Conference is Iowa Water Center’s largest outreach and collaboration effort with a dozen planning partners. The conference is designed to bring together multi-disciplinary organizations and institutions to discuss relevant water issues in Iowa. If interested, visit their website at:

iowawaterconference.org

Clear Creek Watershed Coalition — Quarterly meeting

April 21st, 2021

5:00—6:00 pm

Join the Clear Creek Watershed Coalition and Iowa Watershed Approach partners for our quarterly meeting. This is an opportunity to be involved in the activities of the IWA and ask questions about the program. Meetings are open to the public. For more information contact John Rathbun: 319-499-4835 or john.rathbun@ia.nacdnet.net

Clear Creek Watershed Coalition — Quarterly meeting

July 21st, 2021

5:00—6:00 pm

Join the Clear Creek Watershed Coalition and Iowa Watershed Approach partners for our quarterly meeting. This is an opportunity to be involved in the activities of the IWA and ask questions about the program. Meetings are open to the public. For more information contact John Rathbun: 319-499-4835 or john.rathbun@ia.nacdnet.net

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CLEAR CREEK NEWS

AN IOWA WATERSHED APPROACH PROJECT

Project Update 2020

Over the past year, thanks to volunteer landowners and the help of many partners, the Clear Creek watershed has 10 new ponds. During rain storms these ponds will hold back 27 acre feet of water, helping to reduce flooding downstream. Also constructed were 2 rock chutes to reduce soil erosion plus 1 detention basin and 1 terrace which hold back 2.5 acre feet of storm water. All of the projects have been funded by the Iowa Watershed Approach and the landowners. **All projects are voluntary.**

Check out these websites to learn more about the project:

- www.clearcreekwatershedcoalition.org
- www.facebook.com/ClearCreekWatershed/
- www.iowawatershedapproach.org/



Project Update 2021

This coming year is going to be very busy in the Clear Creek watershed. We will be bidding out and constructing new practices from Iowa County to Coralville, upstream and downstream. Chances are good that you will see trucks or equipment moving and dust kicked up from all of the activity.

A total of approximately 70 practices will be installed by the end of November 2021. These projects will hold back a total of 61 acre feet of water when completed. We will see new ponds, wetlands, floodplain restorations, detention basins, rock chutes and rock riffles, water & sediment control basins, prairie and even some grassed waterways. All of these will help with flood mitigation and water quality in the Clear Creek Watershed. Thank you to all of the landowners, without you these project could not happen!

John Rathbun | *Clear Creek Watershed Project Coordinator*
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Phone: (319) 499-4835 | Email: john.rathbun@ia.nacdnet.net

Practice Focus—Ponds

Farm Pond:

What is a farm pond?

Farm ponds are pools of water that are constructed using either a dam (embankment pond) or a pit (excavation pond). They collect and store surface runoff from a watershed area 10-20 times greater than their surface area. Ponds can reduce phosphorus loads by 85% and prevent soil erosion by eliminating gullies. For livestock producers, ponds can provide drinking water for livestock. Ponds enhance the aesthetic beauty of the landscape, provide fish and wildlife habitat, and can serve as an emergency water source.

Ponds and Flood Reduction

THEIR IMPACT

1. Provides floodwater storage.



Ponds intercept precipitation runoff and provide temporary storage.

2. Reduces peak water flow rate after a storm event.



With temporary storage for precipitation runoff, the timing of flood peaks is delayed.

3. Promotes groundwater recharge.



Seepage through the bottom of the pond converts surface water into groundwater.



Ponds and Water Quality

THEIR IMPACT

1. Sediment is deposited into ponds before it can be carried to streams and lakes.



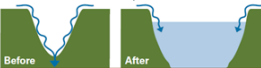
Sediment falls out of runoff when the water is slowed within the pond.

2. 85% phosphorus load reduction.

85% P ↓

Phosphorus carried with sediment is deposited and stored within the pond as runoff is intercepted.

3. Reduces gully erosion soil loss.



Reduced runoff prevents gully formation and subsequent soil erosion.

Additional Benefits of Farm Ponds

► Provides wildlife benefits:

- Provides habitat fish.
- Pond buffer vegetation provides cover for wildlife and offers a location to incorporate pollinator species.
- Increases populations of turtles and muskrat that eat pond plants.

► Can provide a water source for livestock.

► Improves the aesthetic beauty of the landscape and offers recreation opportunities.

► Water stored in ponds can be used as an emergency water supply.

The Iowa Watershed Approach (IWA)



It may not be possible to completely stop floods, but a collaborative effort in the state of Iowa is working to help communities better understand and reduce their flood risk.

Across the state, the Iowa Watershed Approach (IWA) is working with landowners and other stakeholders to implement watershed projects at 90% cost-share to reduce flooding and improve water quality. The IWA is a five-year project to minimize flood risk in Iowa that began in 2016. The IWA aims to bring Iowans together to address the factors that contribute to floods, and in the process to also increase rural and urban resilience to flooding. This approach builds upon other statewide programs in Iowa designed to reduce flooding and improve water quality, such as the Iowa Flood Mitigation Program and the Iowa Nutrient Reduction Strategy.

To learn more about the IWA check out:

www.iowawatershedapproach.org



Congratulations to the Sippy Family!

1000 Friends of Iowa, Best Development Award in the Stormwater Management – Private Category.

Stormwater Management – Private category, the Sippy Family for its Farm Flood Mitigation project near Oxford, which showcases natural infrastructure as a way to reduce floods and lessen negative impacts downstream for the good of everyone.

The winners of the Best Development

Awards are models of responsible development practices that provide benefits to the community, the environment, and the quality of life for future generations. The program is designed to bring attention to cities, companies, non-profit organizations and individuals who demonstrate how responsible development and planning practices provide benefits to the community, the environment and the quality of future generations. The very best projects show collaboration between public and private sectors to build, re-purpose or preserve our infrastructure. These buildings and projects provide sustainability to our state by considering site placement, design, water efficiency, energy management, the materials and resources used, the indoor environmental quality, and public use and benefit.

Is Fire Really Essential in Prairies?

Printed with permission, by Chris Helzer:

Here are some things I think are true about fire in prairies:

Fire is one of three major forces (along with climate and grazing) responsible for creating, shaping, and sustaining prairie landscapes.



Fire can influence the competition between woody plants (trees and shrubs) and herbaceous plants (grasses, wildflowers, etc.) in grasslands. It can outright kill some woody plants (such as eastern redcedar) and top-kills others, forcing them to restart their growth at the ground's surface.

Fire can also affect competition between herbaceous plants. A dormant season fire can speed up and enhance the growth of early spring plants. A growing season fire can suppress the growth of plants that are active at the time of the fire. Plants that begin their seasonal growth spurt right after the fire benefit greatly because it removes many of their competitors for light, nutrients, and moisture. See [here](#) for more on the timing of fires.

Fire can remove litter (dead vegetation from previous years), exposing the soil beneath. Sunlight hitting that soil can increase microbial and root activity, making nutrients more available to plants and triggering seed germination among some species.

Fire releases bound-up nitrogen from dead vegetation, sending most of it into the air as part of the smoke. Other nutrients, including phosphorus and potassium, tend to stay behind in the ash.

Fire alters habitat structure by removing aboveground plant material. This has varying effects, both short-term and long-term, on animals and plants.

Fire attracts large herbivores, if they are present, because of the nutritious fresh growth of plants following a burn event. If both burned and unburned areas are available, large grazers focus their time in the most recently burned areas. This adds another layer of complexity to the impacts of fire on habitat.

Most importantly, fire has been used as a land management tool by people for as long as today's prairies have existed. Since the end of the Pleistocene era (aka Ice Age) and the re-emergence of prairies in central North America, people have actively managed those grasslands with the strategic use of fire. As a result, people and prairie are intrinsically intertwined.

With all that in mind, I think it's fair to say that fire was an essential component in the development and persistence of the prairie ecosystem in central North America. The consistent occurrence of fires set by people, as well as through lightning, probably kept prairie from becoming woodland. That's especially true in the eastern half of the prairie region, where drought tends not to be frequent or prolonged enough to suppress invasion by trees and shrubs.

In addition, the relationship between fire and large grazers created a shifting mosaic of habitat conditions for both animals and plants. Across an immense grassland landscape those shifting conditions helped sustain a rich diversity of species and a resilient ecosystem. The impacts of fire (and grazing) on nutrient cycling was also a major part of that story.

At least historically, then, fire was essential to the function and survival of the prairie landscape.

What about today?

This is where it gets tricky.

I think it's essential to have fire as an available tool for managing prairies, just as it has been for thousands of years. There is no question that fire can be an efficient way to combat woody encroachment in grasslands, though it is not always sufficient on its own – especially as shrubs become increasingly competitive with rising levels of atmospheric carbon dioxide.



Eastern redcedars like this one are easy to kill and control with fire. Many other species can be suppressed, but regrow quickly after fire. Photo—TNC

In addition, fire can still influence grazing patterns and behavior in important ways. There is ample evidence that patchy fires, combined with large herbivore grazing, can create important habitat heterogeneity, even on a relatively small scale (20 or 30 acres or less). In large prairie landscapes, where bison or cattle can roam over thousands of acres, patch-burn grazing may be the best approach we have for creating the kind of shifting habitat mosaic that seems to sustain diversity and resilience.

But – is fire really *essential* for the management of individual prairies? I think about this a lot because our family prairie has never seen fire, as far as I know. That's true at least as far back as the early 1960's when the majority of it was replanted to grassland after being farmed (there are scattered unplowed patches of prairie as well). I could use fire at our prairie, but I don't – primarily because I burn so much at work that the idea of trying to find the time and energy to also burn our own prairie seems overwhelming.



Despite that lack of fire, I've seen positive progress in terms of plant diversity and I feel really good about the habitat being provided and used by animals, including vertebrates and invertebrates. In our case, we manipulate cattle grazing with fences (using the [open gate rotation approach](#) I've discussed before) and create a shifting mosaic of habitat. We control woody encroachment by manually cutting trees, sometimes aided by herbicide for species that regrow after being cut.

Ours is not a unique story. I've seen many other prairies with far greater plant and animal diversity than ours that have not seen fire for many decades. Some are managed with grazing, others with haying, and woody encroachment is controlled by some combination of cutting and herbicides, as needed.

If you're concerned about the use of herbicides, I'll add here that there are plenty of prairies managed with frequent fire that are still losing ground to trees and shrubs, and that manual cutting/shredding and herbicide use are necessary components of management success. In other words, the use of fire by itself is often not sufficient on its own. Also, in some prairies where frequent fire is holding back woody encroachment, there are significant concerns about how that fire frequency is negatively impacting populations of plants and animals.

So, what's missing from these prairies that aren't being

burned? I've asked this question to many people with lots of expertise in fire and prairie ecology. To date, I've not heard an answer that has pushed me to make fire a bigger priority on our family prairie or to push harder on other landowners/managers to do the same. Please chime in if you think you've got a convincing argument. I'm not saying fire isn't necessary, I'm just saying I am not currently convinced that it is.

The answer to my question matters because training, equipment, neighborhood attitudes, and other factors make prescribed fire a real challenge for many landowners. Even for conservation organizations and private landowners who have invested in everything needed to conduct fires, weather and other logistics still present lots of complications.

If we say the only way to manage prairies effectively is to include the use of prescribed fire, that's a tall order, and one that is probably not feasible for most landowners. It will also likely alienate many people who think they're doing a pretty good job of prairie management without fire. We'd better be really sure before we tell those folks their work is insufficient.

To sum up, fire was one of the major reasons prairies developed and persisted following the last ice age. Indigenous people's strategic use of fire helped keep grasslands from becoming overwhelmed by trees and created the dynamic habitat and species diversity that maintained prairie resilience. Today, fire continues to be an effective tool for maintaining the health of prairies, and I think it's essential that prescribed fire is available as an option for all landowners and land managers.

However, while it might seem heretical to some, I am not convinced that fire is an essential tool for all prairies. Or at least, I'm not convinced that prairie managers can't maintain diverse and resilient prairies without the use of prescribed fire. I'd be happy to be proven wrong.

About Chris: Chris Helzer is the Director of Science for The Nature Conservancy in Nebraska. His main role is to evaluate and capture lessons from the Conservancy's land management and restoration work and then share those lessons with other landowners – both private and public. In addition, Chris works to raise awareness about the importance of prairies and their conservation through his writing, photography, and presentations to various groups. Chris is also the author of "The Ecology and Management of Prairies in the Central United States", published by the University of Iowa Press. He lives in Aurora, Nebraska with his wife Kim and their children.

The Clear Creek Watershed Coalition adopts their Watershed Management Plan.

What is a watershed management plan?

A watershed management plan is a road map for *reducing flood risk, improving water quality, assessing resource concerns, and outlining actionable steps* that can be taken *within a watershed* to address these challenges. Across

Iowa in 2021, there are 16 Watershed Management Authorities that have a watershed plan on file. Notably, this does not include watershed projects statewide that have developed watershed plans outside of a Watershed Management Authority.

Components of a strong watershed plan:

- Detailed assessment of land use within the watershed. This information is crucial for goal-setting and identifying priority areas for improvement and it is important that the plan is able to be updated as the information changes.
- Strong community and stakeholder input and has demonstrated local support. Plans that intentionally

incorporate feedback from social cohorts such as farmers, landowners, and community leaders often enjoy increased public confidence and acceptance.

- Flexible enough to fit multiple sources of funding which may have different priorities. From state sources alone, funding priorities can vary drastically between achieving the goals of the Iowa Nutrient Reduction Strategy, reducing flood impacts, or managing stormwater drainage more effectively.

- Sets clear goals and measurable outcomes that align implementation with long-term planning efforts. This may include designating a “leader of implementation,” or a jurisdiction who handles the logistics and coordinates implementation efforts of all members.

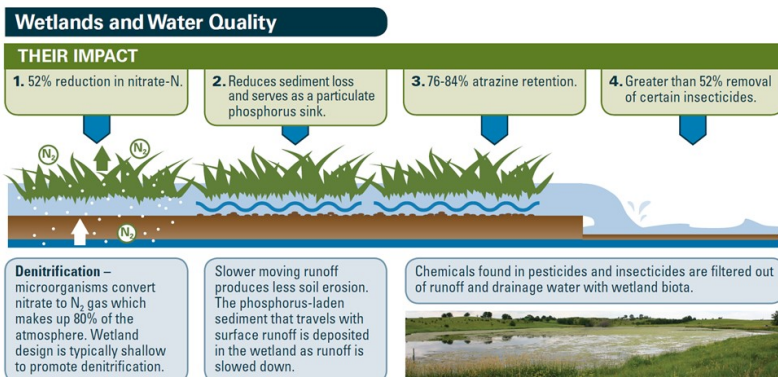
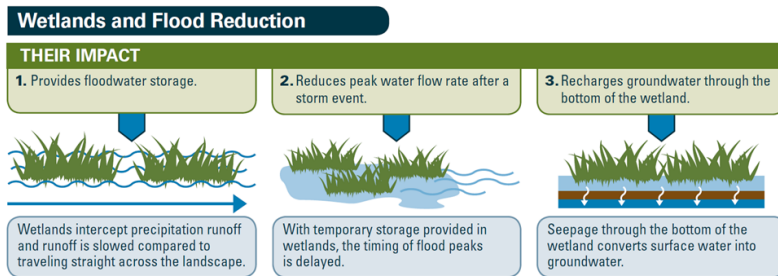


On October 21st, 2020 the Clear Creek Watershed Coalition Board adopted our Watershed Management Plan. The author of the plan will be attending the local government entities to discuss their adoption of the plan. If you are interested in reading the plan you can download a copy at this address: <https://team.ihr.uiowa.edu/index.php/s/bUZIGiq36nJmdHP>

Practice Focus—Wetlands

What is a wetland?

Wetlands are strategically placed to capture surface runoff and drainage water. Wetlands usually have a water depth of approximately three feet or less. They provide temporary storage for floodwater and reduce peak runoff-flow rates after storms. Additionally, they reduce nitrate-N concentration in water by 52% and filter out chemicals from pesticides and insecticides. Wetlands also serve as wildlife habitats for 190 amphibian species and 5,000 plant species.



Additional Benefits of Wetlands

- Provides wildlife benefits:
 - Creates habitat and increases bird populations, including waterfowl, grassland and shore birds.
 - Increases migration corridors for migratory creatures.
 - Provides an opportunity to seed pollinator species in wetland buffer.
- Offers recreation opportunities, such as hunting, trapping and bird watching.
- Improves the aesthetic beauty of the landscape.

