

New Watershed Group Forms to Improve Boone River

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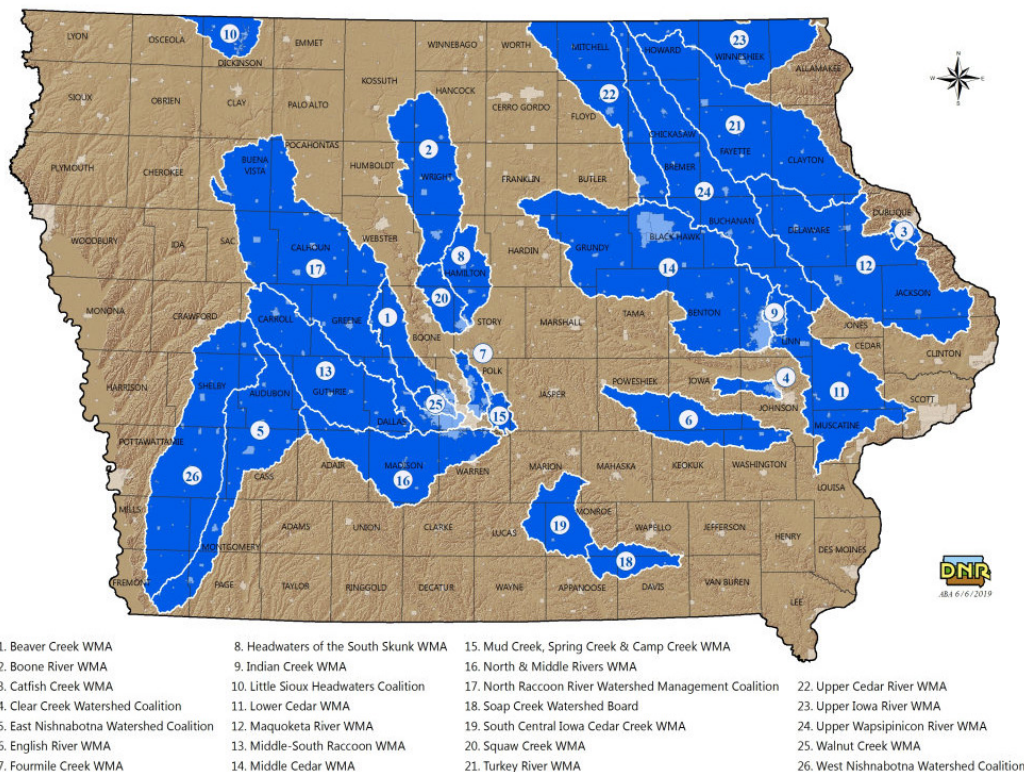
Despite over 16 years of focused efforts on conservation improvements to the Boone River Watershed, only minor improvements in water quality and flooding have been realized. Conservation will need to occur at a much greater scale in order to have a measurable, positive impact for the watershed. The formation of a new watershed group brings renewed hope to our conservation efforts. Local County Supervisors, Soil and Water Conservation Districts, and communities within Kossuth, Hancock, Humboldt, Wright and Hamilton Counties have partnered to form a group called the Boone River Watershed Management Authority (WMA).

The goal of this WMA is to combine efforts in addressing conservation issues at the watershed scale. This group will bring additional funding and local expertise to

improve water quality, decrease flooding, improve recreational opportunities and increase wildlife habitat and biodiversity. The Boone River is not alone. There are 25 other WMAs working in various watersheds across the state of Iowa.

The first step will be for the WMA to develop a watershed plan to identify the needs of the watershed, set goals for improvements, and create a plan of action to meet those goals. If grant funding is awarded to develop the watershed plan, the planning process will begin this winter. Public input will be sought to incorporate local knowledge and concerns into the plan.

Be on the lookout for upcoming watershed planning meetings at booneriver.org.



IOWA WATERSHED MANAGEMENT AUTHORITIES MAP
COURTESY OF IOWA DEPARTMENT OF NATURAL RESOURCES



One and the Same

The art of blending agriculture and conservation

Omar de Kok-Mercado, STRIPS Project Coordinator, Iowa State University

Agriculture is the science and art of cultivating plants and animals. Agriculture enables us to create food surpluses and lead comfortable lives, allowing for time spent with family, friends and to recreate, however we please to do so. We spend time working and we spend time playing, some call this the “work-life balance”, but we should think about it through a different lens, a “work-life blend”. Balancing suggests even distribution, a steady state, an obvious separation of two things. Blending suggests a combination, a dynamic state and a line of separation that cannot be distinguished. Blending is a science and an art. Rather than focusing on balancing conservation with agriculture, blend the multi-functionality of conservation lands with production lands to be one and the same.

So, how do we create a work-life blend in Iowa agriculture? One thing is for sure: doing what we’re doing right now is not working. Since 1988 Iowa has had over 1,000 presidential disaster declarations, 56 of those being in 2019. Over the last three decades, Iowa has spent \$17.5 billion fixing the damage caused by flooding. In the last four decades, the number of climate related disasters nationally has reached nearly two trillion dollars in damages. That is roughly 400 times what is appropriated in the 2018 Farm Bill for conservation. Two trillion one-dollar bills could circle Earth almost 8,000 times.

What if we reallocated all or even a portion of this money toward a work-life blend for Iowa agriculture? The \$17.5 billion dollars spent fixing the damages from flooding since 1988 is equal to over \$564 million a year. Those dollars could be appropriated for nutrient reduction strategy practices like cover crops, bioreactors, saturated buffers and oxbows. Prairie restoration is a great practice for reducing nutrient loading to Iowa waters. Research conducted at Iowa State University over the last 13 years demonstrates row-crop fields integrated with 10% prairie can reduce soil erosion up to 95% and nitrogen in surface runoff up to 85% while reducing water runoff by 44%. The cost of installing and managing one acre of prairie is roughly \$58 per year (with CRP). If we installed prairie on low-yielding acres and assumed those acres covered 10% of production lands in Iowa, there would be roughly \$432 million remaining annually to invest into other practices.

Flooding is a natural occurrence and mitigating damages from flooding could be possible when suites of conservation practices are applied. To mimic the native functionality of deep prairie soils we need practices that infiltrate water and reduce runoff in our agricultural fields. Strategically installing prairie in flood-prone areas is only part of the solution to mitigating the damages from flooding. In-field practices like no-till, cover crops, and livestock integration increase infiltration, water holding capacity, and nutrient retention. Similarly, edge-of-field practices like saturated buffers, bioreactors and oxbows can reduce nutrient loading into Iowa’s waterbodies. The art of blending conservation and agriculture is the art of embracing the complexity, diversity, and functionality of our native ecosystems into our agricultural lands. Over the next three decades, we can choose what tools to use so that agriculture and conservation are one and the same.

References: Congress.gov, Iowa Farm Bureau, Iowa Flood Center, National Oceanic and Atmospheric Administration, National Agricultural Statistics Service and prairiestrips.org

PRAIRIE STRIPS BLEND AGRICULTURE AND CONSERVATION INTO ONE PRODUCTION SYSTEM
PHOTO BY OMAR DE KOK-MERCADO

Keys to Using Manure as a Nutrient Source

Angela Rieck-Hinz, Extension Field Agronomist, Iowa State University

Prior to the start of World War II, the use of synthetic or chemical fertilizers was scarce due to price, availability of products and limited application technologies. During that time, manure and plow-down or green covers were the primary source of fertilizers for crop production. After World War II, synthetic fertilizer became more available and provided consistent nutrient analysis. This, along with a better understanding of crop nutritional needs, allowed farmers to move away from using manure nutrients as one of their primary sources of fertilizer. Today, there is a perception that we often over-produce manure nutrients and can't, or don't, use them as an effective source of nutrients for crop production. Nothing could be further from the truth, but let's go through some reminders to help us best use those nutrients in manure while minimizing losses to our water sources.

- **Manure Sampling:** Take time to collect good, representative samples and send them to a lab for nutrient analysis. This will help you know what nutrients are in the manure, how much is in the manure and at what rate you should apply it.
- **Soil Sampling:** Soil sampling tells us what the soil is able to supply the crop. When soil test levels for phosphorus (P) and potassium (K) are not adequate for crop production, we must fertilize with manure, commercial fertilizer or other sources. Proper sampling and the correct volume of samples is key to accurate fertility recommendations.
- **Calibrate:** Correctly calibrating manure application equipment ensures you are putting on the correct amount of manure nutrients. This helps identify distribution issues within each pass of the equipment which can cause uneven crop growth.
- **Strike a balance:** Understand the difference between manure nutrient availability and manure nutrient supply. Availability means the nutrient is present and is in a form that can be used by the plant. Not all manure nutrients exist in a form that can be readily used by the crop. Nutrient supply refers to the loss of nutrients through various processes or conversions in the soil to forms not available to the crop.
- **Understand climate impacts:** If rain is imminent, do not apply manure due to increased likelihood of nutrient runoff. Do not apply manure on frozen or snow-covered ground when there are chances of precipitation or warming temperatures that could cause snow-melt and run-off of applied nutrients. Don't apply liquid swine manure in the fall until soil temperatures have reached 50 degrees F and are cooling. This will help keep the nitrogen in the NH_4^+ (ammonium) form which is held in the soil. Warmer soil temperatures and adequate soil moisture increase microbial activity and convert the NH_4^+ to nitrate (NO_3^-), which can be subject to loss by leaching.

Learn more: PMR 1003, Using Manure Nutrients for Crop Production, published by Iowa State University Extension and Outreach. You can access this publication from your local county Extension Office, or at <https://store.extension.iastate.edu/product/12874>. Additional resources on soil sampling, manure sampling and calibrations are available at your county Extension office or through the Iowa Manure Management Action Group (IMMAG) web page at: <http://www.agronext.iastate.edu/immag/>



NUTRIENT APPLICATION
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