



2017

Wisconsin Land and Water Conservation

Annual Report

2017 Wisconsin Land and Water Conservation Annual Report



Department of Agriculture, Trade and Consumer Protection

Division of Agricultural Resource Management

2811 Agriculture Drive, PO Box 8911, Madison, WI 53708-8911

(608) 224-4620

datcp.wi.gov



Department of Natural Resources

Bureau of Watershed Management

101 S. Webster St., WT/3, Madison, WI 53703

(608) 264-6261

dnr.wi.gov

DATCP and DNR provide equal opportunity in their employment programs, services and functions under an Affirmative Action Plan. If you have questions, please write to the Equal Opportunity Office, Department of the Interior, Washington, D.C., 20240. This publication is available in alternate format upon request. Please contact the DATCP LWRB at (608) 224-4622 for information.

This report is available on the following website:

<https://datcp.wi.gov/Pages/Publications/LandWaterAnnualReport.aspx>

Cover Photo: Streambank restoration at Windy Hill Ranch, Shelliam Family Farm. The Shelliam's hosted the 2017 Conservation Observance Day on their farm in Lafayette County. Conservation Observance Day is an annual event that recognizes the outstanding achievements of Wisconsin landowners who are protecting and enhancing our state's natural resources.

Contents

Introduction	1
Wisconsin's Impaired Waters	3
Measured Load Reductions in 2017	4
Columbia County Cattleman Looks at the World Through New Eyes	6
Farmers Teaching Farmers: Another Tool For Nutrient Management Training.....	9
Keeping The Soil Where It Belongs – Pierce County's Approach to Erosion Control	13
Creative Combination of Erosion Control Practices Protect Chippewa Falls Farm	15
Watershed Strategies in Wisconsin.....	17
Outreach and Education Activities	19
Pioneering Project Removes Phosphorus in Sheboygan County	21
Rainy Day Conservation in Northern Wisconsin	23
Wisconsin Conservation Activities in 2017 and 2018	26
Conservation Practices Installed in 2017 with State and Federal Funding.....	30

Figures and Maps

Causes and Sources of Impairment	3
Top Strategies Used by County Conservation Departments to Target Areas for Conservation in 2017.....	4
Estimated Known Total Reduction of Phosphorus (lbs) Resulting From Conservation Practices in 2017.....	4
Estimated Known Total Reduction of Sediment (in tons) Resulting From Conservation in 2017.....	4
Methods Used to Estimate Phosphorous and Sediment Reductions by County	5
Activities and Programs That Encouraged Nutrient Management Plan Development.....	10
Status of Nutrient Management Planning in Wisconsin In 2017	12
Rate of Water Erosion in Wisconsin in Tons Per Acre Per Year.....	13
Percent of Counties That Use Farmland Preservation Site Visits to Determine NR151 Compliance	14
Watershed Strategies by County.....	17
Producer-led Watershed Protection Grant Recipients	17
Watersheds with Approved TMDLS or TMDLS Under Development and Active 9-Key Element Plans	18
Local Emerging Conservation Topics in Wisconsin Counties	19
Select Conservation Practices Installed in 2017 Compared to Estimates From County Work Plans	26
Other Select Conservation Practices Installed in 2017	27
Number of Estimated and Actual Permits Issued by County Conservation Departments.....	27
Invasive Species Activities in 2017	28

Acknowledgments

Land and Water Conservation Board Members

Mark Cupp - *Chair*
Carl Chenoweth
Lynn Harrison
Eric Birschbach
Dave Solin
Patrick Laughrin
Mary Anne Lowndes
Caitlin Frederick
John Petty

Advisors to the 2017 Land and Water Conservation Board

Patty Edelberg, *FSA*
Ken Genskow, *UW-Extension*
Eric Allness, *NRCS*
Francisco Arriaga, *UW-CALS*
Kurt Calkins, *WI Land + Water*
Jim VandenBrook/Matt Krueger, *WI Land+Water*

Agency Contacts

Coreen Fallat
Corinne Johnson

Story development, graphic design and mapping by
Donna Gilson, Elliot Meyer, Melissa Gilmore, Natalie
Cotter, Maggie Jungwirth, and Alison Volk.



Clover and rye cover crop, Buffalo County. Photo: Carrie Olson

Introduction

With each passing year, Wisconsin's conservation partners continue their efforts to effectively address the most pressing environmental challenges throughout the state. This 2017 Wisconsin Land and Water Annual Report shows that the past year was no exception.

Successful conservation requires a mix of dedication, perseverance, creativity, passion, technology, and partnership. We are fortunate in Wisconsin to have a strong conservation partnership that showcases all of these qualities.

In this report, you'll see progress in reducing nonpoint sources of phosphorus and sediment by working with individual farmers and landowners to integrate conservation practices on their land. You'll read about how perseverance on one farm helped address a long-term runoff problem. You will also hear about how one county's multi-faceted approach

to soil erosion provides a variety of options to reduce cropland soil erosion. Another story will share how the state's nonpoint source pollution reduction program helps support county conservation goals. Other stories describe how technology is providing a creative solution to pollution reduction, and highlight how conservation partnerships are managing challenges in northern Wisconsin.

There is still more work to be done, but Wisconsin's conservation partners show they have what it takes to continue to meet the challenge.

Successful conservation requires a mix of dedication, perseverance, creativity, passion, technology, and partnership.



Conservation Funding in Wisconsin in 2017

\$8,850,400

in state funding available for local conservation staff.

\$8,522,843

in state funding spent to cost-share agricultural and urban conservation practices (\$3,502,581 from DNR and \$5,020,262 from DATCP).

\$706,670

in state funding to support necessary training and the development of conservation tools and standards.

\$8,085,000

in local funding from sources including county levy, lake district funds, and donations for agricultural and urban conservation projects and easements.*

\$1,973,000

in grant funds for conservation projects, other than grants from DATCP and DNR, to cost-share conservation practices.*

\$59,200,000

from federal conservation programs through USDA-NRCS for conservation activities. The majority of the funding is through the Environmental Quality Incentives Program (\$28.7 million) and the Conservation Stewardship Program (\$19 million).

*As reported by counties in March 2018



Wisconsin's Impaired Waters

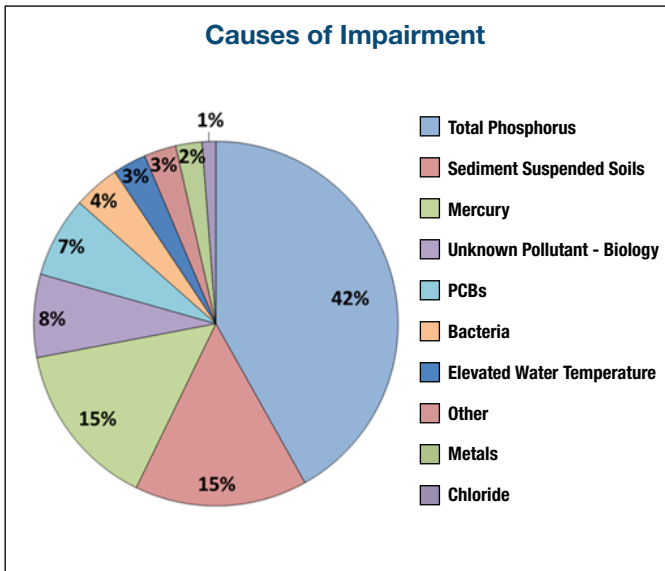
Section 303(d) of the Clean Water Act requires Wisconsin to publish, every two years, a list of all waters that do not meet water quality standards, known as the "Impaired Waters List." This list reflects waters that are newly added or removed based on new information or changes in water quality standards. The most current list approved by the U.S. Environmental Protection Agency (EPA) on August 29, 2017 added 225 new waters.

Seventy percent of Wisconsin's impaired waters are listed due to nonpoint source pollution, or a combination of nonpoint and point sources of pollution. A majority of the listings are waters that

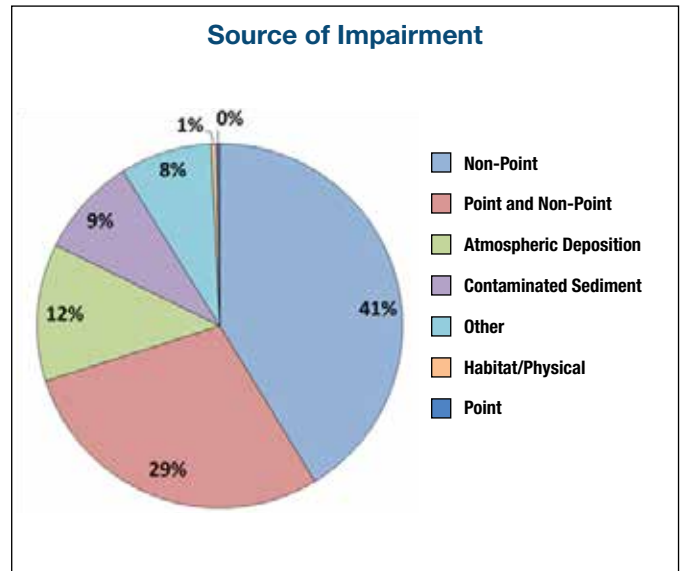
exceed total phosphorus criteria. A significant number of new listings are based on poor biological condition or elevated water temperature. The remaining new listings are due to poor habitat conditions, concentrations of mercury or PCB in fish tissue, or elevated levels of bacteria or chloride.

To learn more, the 2016 Impaired Waters List is available on the DNR web site at:

http://dnr.wi.gov/topic/impairedwaters/2016IR_IWLlist.html.



Causes of impairment (or pollutants) for waters included on Wisconsin's 2016 CWA Section 303(d) list of impaired waters.



Impairment source categories for impaired waters listings included on the 2016 impaired waters list.



Rain garden, Marathon County

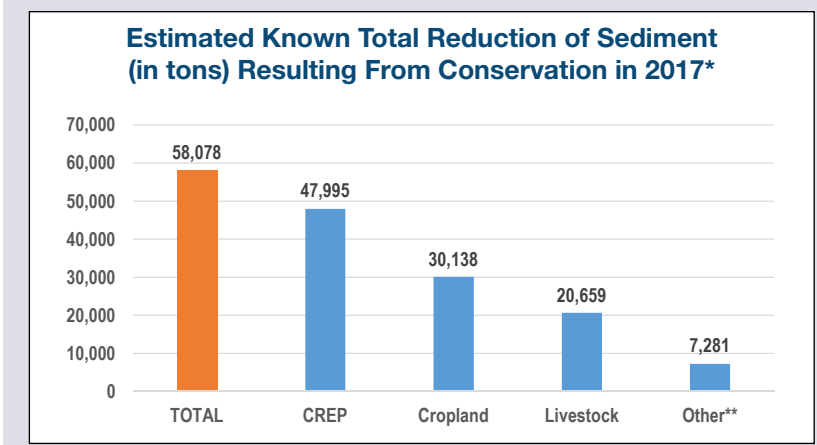
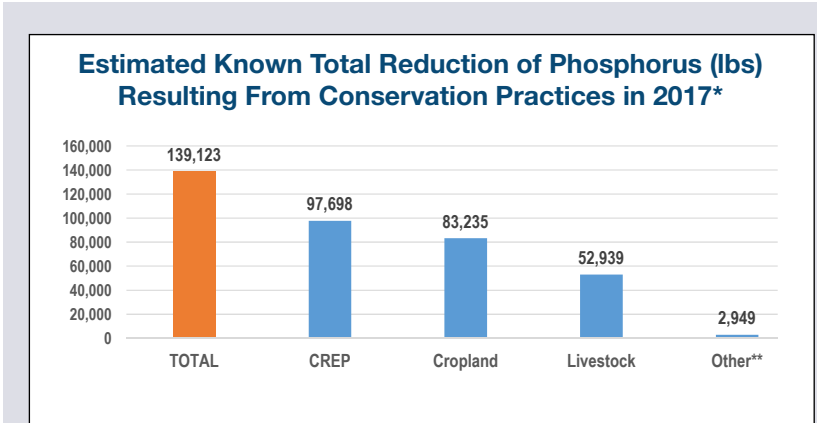
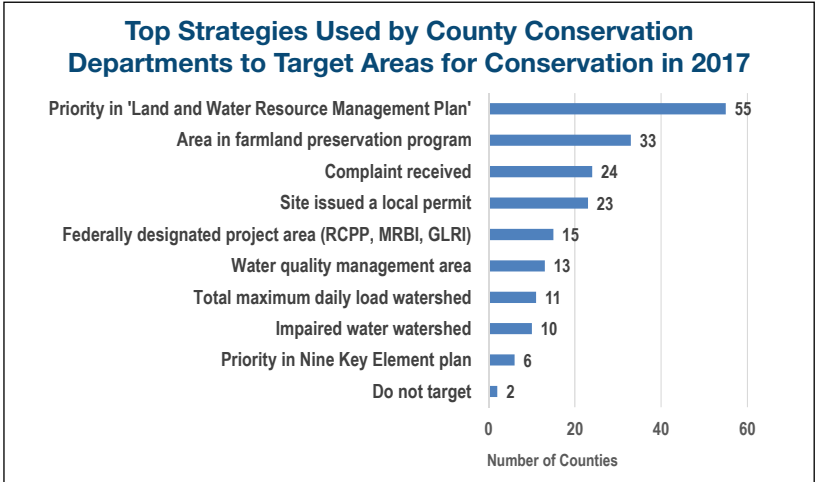


Measured Load Reductions in 2017

Conservation practices can reduce the amount of phosphorus and sediment that reaches Wisconsin's waters. Wisconsin's conservation partners use a variety of strategies to prioritize and target annual conservation efforts. In most cases, these local strategies are set through the development of county land and water resource management plans. These plans are developed through engagement with a diverse range of stakeholders.



Gravel crossing, Ashland County. Photo: Tom Fratt

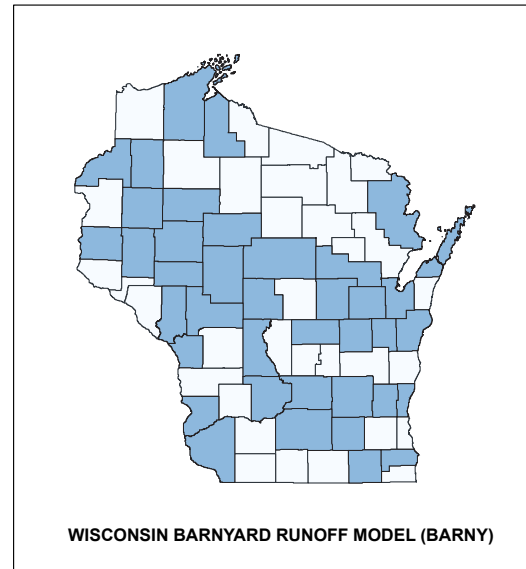
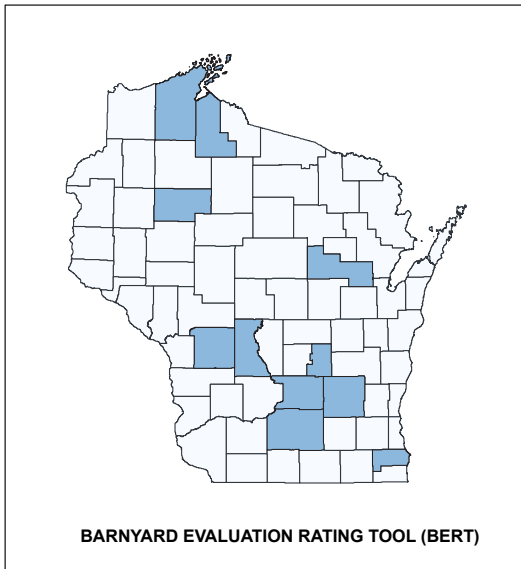
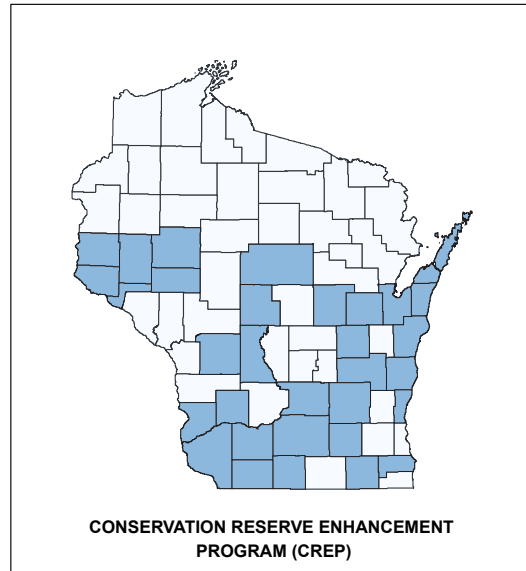
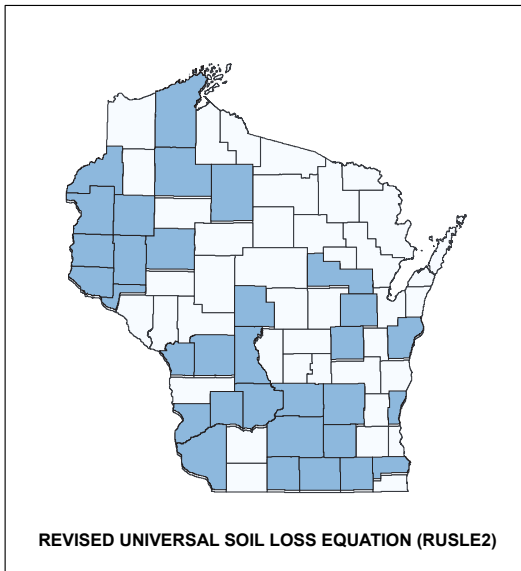
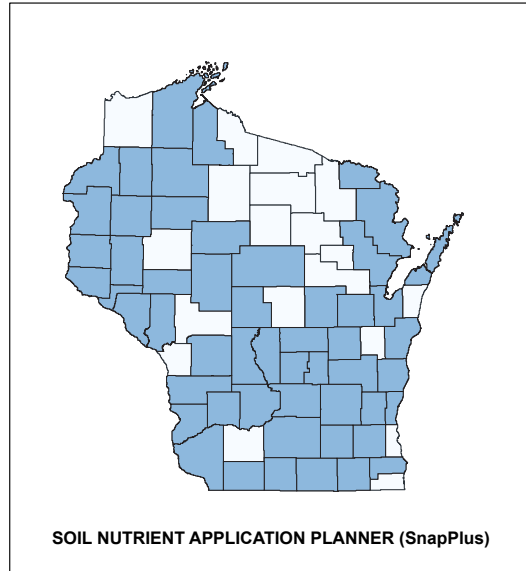
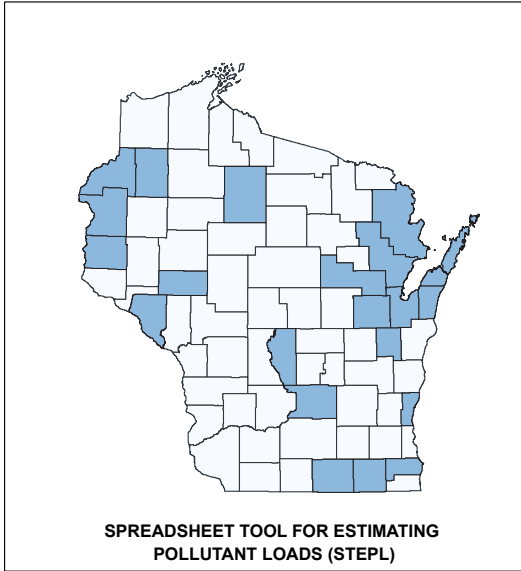


*The numbers shown here capture only reductions that were tracked in 2017 and reported by counties in March 2018, or reported in the annual report for the Conservation Reserve Enhancement Program. Reductions for all conservation practices implemented or installed in 2017 are not calculated and tracked. As a result, the numbers shown here highlight a fraction of the likely total reductions in phosphorus and sediment from conservation efforts in 2017.

**Other conservation practices include streambank stabilization, riparian buffers, and critical area stabilization.



Methods Used to Estimate Phosphorous and Sediment Reductions by County



*As reported by counties in March 2018. Created by DATCP April 2018



Columbia County Cattleman Looks at the World Through New Eyes

Adam Hahn was a young farmer following an old-school approach until one day he opened a letter containing a photo of one of his cows standing in a stream and a message telling him he was in direct violation of state law. The letter was from the Wisconsin Department of Natural Resources and it was a revelation.

“I honestly had no idea,” he remembers. Being a practical man and one with a sense of civic duty, he told himself, “I guess I’m in the wrong here and need to do something different... That was the beginning. I realized it was not only my personal obligation, but there are higher powers dictating what I do on my property.”

Adam hired someone to fence his beef cattle out

of the branch of Crawfish Creek running through his land in eastern Columbia County. That was a Band-Aid, he said, and shortly afterward, he reached out to Tim O’Leary, a specialist with Columbia County Land and Water Conservation.

Hahn’s family has several farms in Columbia County. They bought this one, in Otsego Township, in 2008. The previous owner had been a grazer and Hahn was running a cow-calf operation with open access for the cattle to the pasture and creek.

“We had some complaints and issues with the previous owner, with continuous grazing and cattle access to streams,” O’Leary said. “Adam had more cows than were there before so it accelerated the issues.”



Stabilized and seeded streambanks return Crawfish Creek to its channel



It was largely an unmanaged pasture, probably overstocked, so the vegetation looked like a golf course year-round. Overgrazing was leading to runoff. The muddy, undeveloped area around the feed bunks kept getting bigger and bigger, leading to more runoff and the stream banks were eroding more every year. And it was all visible from the county highway running along the property.

“Adam came from an old-school background and thought rotational grazing was a myth. We talked about a potential project at this farm three years ago and when I mentioned grazing he gave me the eye roll,” O’Leary said. Previously, O’Leary had worked with Hahn on a waste filtration system project for barnyard runoff, undertaken somewhat reluctantly on another of the family’s farms.

“I was reluctant on the first project but in the end it worked.”

“I was reluctant on the first project but in the end it worked. I had little to no experience with conservation projects, especially grazing, and the cost was a deterrent,” Hahn said.

And then came that letter. As it happened, the LCD had a targeted runoff management (TRM) grant from the DNR that would cover a good portion of the costs of work that needed to be done on the farm.

“I didn’t have to twist his arm. He said, ‘OK, let’s see what you can do’,” O’Leary recalled.

They approached the neighboring landowner who was renting the pasture and hay ground to Hahn. Their pasture was also overgrazed and subsequently became part of the project as well as the hay ground.

Hahn established a rotational grazing pattern on both places. They built cow traffic lanes between the feed bunk and the pastures, adding several watering stations to keep the cattle on pasture and out of the streams. They built five stream crossings with hard surfaces so the cattle don’t want to linger, stabilized the creek banks and seeded critical areas. In other words, it was a major project.

Most of the work was done in late 2016, before the TRM grant expired, with seeding and some leveling left to be completed in early 2017. The county and



Before: The undeveloped area around the feed bunker kept growing at the Hahn’s farm every year



After: Traffic lanes between feed bunkers and pastures and reseeding controlled runoff and gave calves better access to clean water

Hahn himself covered the rest of the costs. As the before and after photos show, the results are dramatic.

Beyond the obvious soil and water quality improvements, Hahn sees great benefits in other areas. For one thing, he has increased forage production and spends less time and energy bringing feed to the feed bunk. The big surprise



was a significant improvement in herd health, especially in his calves. The cows are calving later, so calves are on green grass when they're born. Just as important, they have ready access to clean water now. Before, they didn't want to wade through mud to get to the creek, so they would just nurse instead. Milk is good, but they needed water, too. "It's night and day... having access to clean water is probably the easiest thing to do for calf health," he said.

As for time spent managing the grazing pattern, he said, "Moving the cattle is as simple as opening a gate, waiting a day, and closing the gate."

"I believe in doing the right thing and being a good representative of the agriculture industry. I'm anxious to learn and do better going forward."

Regarding the hard times facing farmers right now, Hahn said, "Low-cost producers will be the ones left, but there's a line between being a low-cost producer and holding things together with wire and string." In the past, he's tried to get bigger and better. This year, he said he and his wife are looking at lots of small changes, including marketing to build their business.

"I believe in doing the right thing and being a good representative of the agriculture industry. I'm anxious to learn and do better going forward. There will always be things affecting profitability I can't control," he said. "It's always a matter of identifying what you should do, what you can do, and what you can afford to do."

The big changes of the last two years were a great experience, he said. From the county office's viewpoint, O'Leary agreed. "It's been wonderful working with Adam. He's really open-minded about what his obligations are and what state regulatory agencies expect of him. He sees that 'this is what it looks like when I meet my obligation.' And he has the ability now to compare this site with his other sites. I'm sure he's making changes even without us."

Hahn's Project by the Numbers

On his property

Cattle lanes: **3,480** linear feet of cattle lanes

Concrete heavy use pad: **3,850** square feet

Rock heavy use pads: **750** square feet

Roof gutters: **50** feet

Stream crossings: **5**

Fencing: **10,487** linear feet

Critical area stabilization: **1** acre

Watering station: **1**

On neighboring land (rented to him)

Fencing: **10,729** linear feet

Cattle lane: **1,800** linear feet

Access road: **400** linear feet

Critical area seeding: **1** acre



Feed lane with newly installed watering station



Farmers Teaching Farmers: Another Tool For Nutrient Management Training

Clint Hodorff’s family farm is in Fond du Lac County’s northern Kettle Moraine, right where the glacier dumped gravel and sand and left steep hills, deep valleys and a patchwork of soils. Josh Hiemstra’s family farm lies in Springvale Township on the other side of the county, where his steepest slope is 4 percent and the Rock River borders his land.

Their common denominator? They write their own nutrient management plans, document their progress, and are happy to tell other farmers about it.

And that’s how they wound up in a classroom last December, leading Fond du Lac County Land and Water Conservation Department’s 2017 advanced nutrient management planning class. Becky Wagner, the county’s agronomist, had received a Nutrient Management Farmer Education (NMFE) grant from the Wisconsin Department of Agriculture, Trade and Consumer Protection and used it to host an August field day on Hiemstra’s farm, a winter nutrient management education day and advanced training day on using the SnapPlus



Spring barley cover established after corn silage harvest on Joel Hiemstra’s land

nutrient management planning software.

The grants allow recipients, like Fond du Lac County, to offer incentives to farmers for soil testing and other elements needed to complete a nutrient management plan. They also support workshops, on-farm visits, manure spreader calibration, and consultations. The grants normally help local educators and agencies provide training for farmers new to nutrient management or the SnapPlus software.

Wagner has a long history training farmers both in initial nutrient management planning and in continuing education and likes to think outside the box. “I’ve been doing farmer training since 1999. I’m tired of the same old things, and a lot of people come every year, so I like to keep it fresh. With all the farmer-led initiatives now, who better to lead the training than farmers?” she thought. That innovative approach won a grant for the county.

She used the funding to bring in speakers, hold a field day, and offer the one-day training in December the day after the SnapPlus 101 training. Along with participants from the basic class, she gets farmers looking for new NMP and SNAPPlus information who sign up for the advanced class every year.

Farmer Developed Plans in 2017

1,841 farmers wrote their own plans

536,515 acres covered by plans written by farmers

8% increase in farmer-written plans from 2016

24% of all nutrient management plans are written by farmers

Farmers are assisted with plan development by the county’s conservation professionals, state nutrient management specialists, UW-Extension educators, and agronomists.



She chose the two farmers based on their differences and their similarities. Hodorff and his family operate a dairy CAFO, milking about 950 cows, in the Town of Eden -- Kettle Moraine country. Hiemstra milks about 170 cows in the flat lands of the Town of Springvale.

“Both are doing rather innovative things that increase the value of their farm business. They both thoroughly think through the ‘why’ they do something when they manage their cropping system. The ‘why’ is different for everyone. They also have found that adding those strategies to their crop management system has helped them manage manure and their crops in many different ways and has resulted in positive outcomes,” Wagner said.

“I asked them if they wanted to share their own data or use a sample farm, and they both were willing to share their own information with the class,” she said. Both put together data and photos for PowerPoint presentations, and each had the floor for an hour. They opened the floor up to questions,



A forage pea/radish cover crop planted on Joel Hiemstra's farm after winter wheat and manure application

and along with telling their own stories, they were able to answer participants’ questions about using SnapPlus, too.

Along with his dairy herd, Josh Hiemstra raises about 100 heifers and 120 crossbred Angus, with 530 acres – half owned and half rented. He farms with his dad and his wife, Bobbie. It’s a hands-on operation, with only some high schoolers hired to help with general chores. The farm has seven months of storage space for liquid manure.

He started nutrient management planning in 2000, about the same time they expanded to a free stall barn. The county had a grant for the Rock River watershed. For the first four years, he worked with a crop advisor and then he decided to download the software and do his own plans. He worked with Wagner over the years, appreciating the direction from someone who had nothing to gain financially from how he managed nutrients.

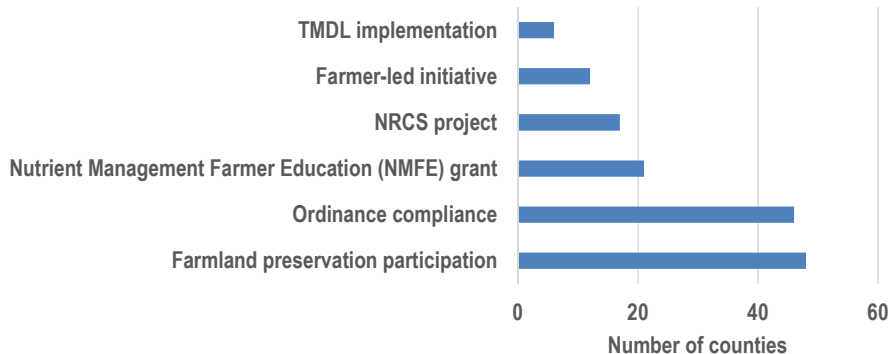
Nutrient Management Plans Reported in 2017

7,774 nutrient management plans reported by farmers

3,345,174 million acres covered by these plans

36% of Wisconsin’s 9 million cropland acres

Activities and Programs That Encouraged Nutrient Management Plan Development in 2017



“I learned from her. She allowed me to try stuff,” he said. One of the things they tried was establishing cover crops and then spreading manure, or spreading and then planting the crop, rather than incorporating manure. Using the right rate and timing, on their flat land, it works. They no longer do any moldboard plowing, staying off the fields as much as possible. Ten years ago, they started planting rye both as a winter cover crop and for



forage. Now they plant radishes, barley, peas and other cover crops in a variety of mixes to curb erosion and hold nutrients in place. “I’m trying to get living cover on the whole farm,” he said.

The benefits of trying all that stuff? “Obviously, we’re more efficient with money spent on fertilizer,” he said. He takes manure and legume credits in his plan, so he’s not buying more fertilizer than he needs. But overall soil health is the biggest benefit, he says.

That’s what impressed Wagner and led her to ask him to host that field day last summer, and then to present his results to the December class.

“I’m a big numbers guy. I want to prove what I’m doing economically,” he said, and he takes photos throughout the growing season to paste into the “note box” that’s part of SnapPlus. So, getting prepared didn’t take him that much time.

Clint Hodorff returned to his family farm two years ago after a career as a crop advisor. The family has been through three CAFO license cycles, so they have a 15-year history with nutrient management planning. They have 1,300 acres in crops -- 1,200 for manure application included in their plan. They had 100 fields, averaging 12 acres, with up to six different soil types in some fields and many 10 percent slopes. That’s a nutrient management challenge.

They’d been working with an agronomist, but now Hodorff handles the planning. He sees a world of difference in doing the plan himself, knowing everything that goes into it, rather than getting a plan handed to him by someone else. It’s hard



A split between deep tillage and seeded cover crop one month after planting on Hodorff’s farm, useful for tillage checks to see if there is a difference in the crop throughout the season, or just a savings on fewer passes through the field



Hodorff’s Turbo Max vertical tillage unit with Turbo Seeder for applying cover crops in one pass after silage harvest

to find the time to go through it when you don’t write it yourself, he said. He finds the plan to be a good baseline and a good way to know what’s happening with the soil.

Like Hiemstra, Hodorff’s planting cover crops, with plans to go to minimum till and minimum till manure injection.

Nutrient Management Farmer Education Grants Awarded in 2017

Nutrient Management Farmer Education grants support educational programs used to teach farmers to develop their own nutrient management plans.

\$175,814 awarded to 17 entities.

Tier 1 grants went to 11 entities, totaling **\$163,944**. Tier 1 funding can be used for participant payments to complete soil testing, attend training, conduct manure spread calibration, and provide workshops.

Tier 2 grants went to 6 entities, totaling **\$11,820**. Tier 2 funding provides education for nutrient management planning and related activities.

“The main thing I was looking at was water quality, based on erosion. Even with strip crops, a heavy rainfall can take away key nutrients,” he said.

The Hodorff farm is also part of the Sheboygan River Progressive Farmers, a group that was recently funded by the Wisconsin Department of Agriculture, Trade and Consumer



Keeping The Soil Where It Belongs – Pierce County’s Approach to Erosion Control

Efforts designed to control cropland soil erosion are important for crop productivity and to protect water quality. In Pierce County, residents recognize the value of controlling soil erosion, and identify soil erosion as a top conservation concern. By working proactively with farmers, and using a variety of tools and funding sources, the Pierce County Land Conservation Department supports efforts to prevent the county’s soil from washing away.

Pierce County focuses its efforts in smaller sub-watersheds. By completing an annual assessment of crop type, tillage and residue cover, the county identifies areas where erosion rates may be the highest. The conservation staff can then use this information to prioritize where to put conservation practices on the ground.

The county encourages farmers to try different conservation practices to increase rainfall infiltration and reduce cropland soil erosion. “Pierce County’s conservation program is strong, and well-supported by the county board,” states

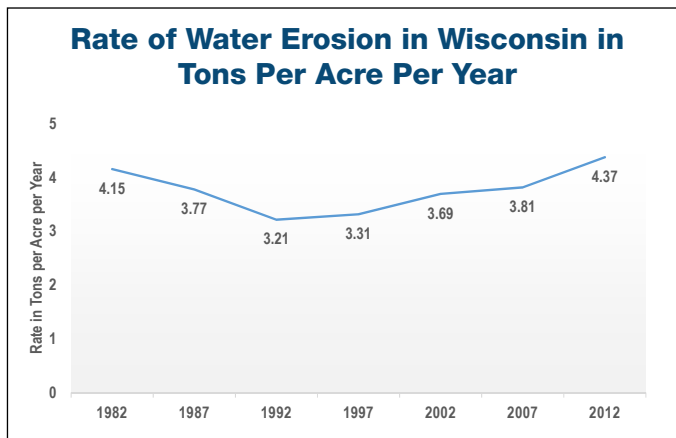


Leon Morrison was recognized in 2014 as Pierce County’s Outstanding Conservation Farmer. He enthusiastically pursues soil conservation on his farm, including no-till and cover crops, and advocates the benefits of these practices to others in the county

Land Conservation Department Director Rod Webb. This support, and the department’s good reputation, goes a long way in getting practices on the ground. Conservation funding for these practices also helps, as this funding covers some of the cost associated with the practices. Federal funding through the Mississippi River Basin Initiative USDA-NRCS supports conservation practices that address soil erosion in one area of the county, and other sources of state and county funding help in other priority areas.

“Conservation work needs to be a continuous effort.”

The state’s Farmland Preservation Program assists Pierce County with efforts to reduce cropland erosion. Owners of farmland in the county who participate in this state program agree to meet state soil and water conservation standards, and in return are eligible for a tax credit. In Pierce County, landowners in the Northwest Pierce County Agricultural Enterprise Area (AEA) recently became



U.S. Department of Agriculture. 2015. 202 Natural Resources Inventory. Natural Resources Conservation Service, Washington, DC. February 21, 2018.)



Wisconsin's Farmland Preservation Program Participation*

Participants in the state's Farmland Preservation program commit to soil and water conservation. Local county conservation departments work with these voluntary program participants to ensure continued conservation efforts.

11,895 Individuals who participated in the farmland preservation program

2,294,417 Million acres on which farmland preservation credits were claimed

*As reported by the Wisconsin Department of Revenue for tax credit claims paid in 2017.

eligible to participate in the program by signing 15-year farmland preservation agreements with the state. Since the designation of the AEA on January 1, 2017, Pierce County landowners within the AEA signed just over 2,600 acres into these agreements; the second highest amount out of any AEA in the state last year.

Farmers throughout the county also benefit from the county's no-till drill rental program. This program allows a farmer to try no-till planting, which can reduce soil erosion, before making an investment in expensive machinery.

To keep the soil where it belongs, Webb explains "conservation work needs to be a continuous effort." With all of the existing projects in the county, Pierce County isn't stopping anytime soon.

Number of Conservation Site Visits in 2017 and Estimated Compliance With Required Standards

3,349 Farmland preservation conservation site visits

90% Farmland preservation participants meeting conservation requirements

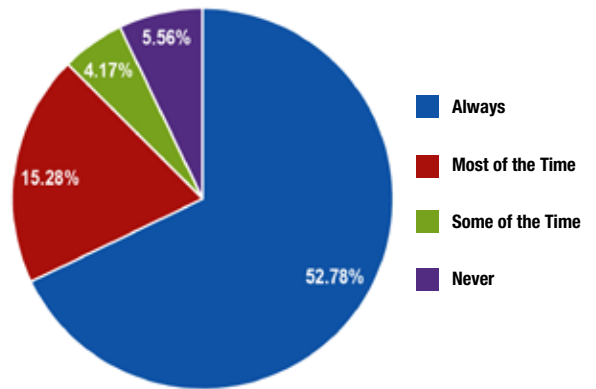
2,239 Visits to determine compliance with state standards under NR 151

85% Sites determined to be meeting state standards under NR 151

567 Site inspections, including forestry site inspections

62% Sites determined to be meeting standards relevant to these other site inspections

Percent of Counties That Use Farmland Preservation Site Visits to Determine NR151 Compliance*



*Percent based on number of counties with Farmland Preservation eligible areas



Creative Combination of Erosion Control Practices

Protect Chippewa Falls Farm

Bryon Swoboda knows the lands west of Chippewa Falls quite well. He grew up on a dairy farm there and now runs the family operation in partnership with his father. Over the last 18 years, Bryon has watched the farm grow to 160 head of cattle. They grow hay and corn in rotation for their livestock on approximately 120 acres of cropland.

One of their crop fields backs up to a large wooded valley that drains rainwater into Trout Creek, a tributary feeding the Chippewa River. The channelized area is incredibly steep, dropping 25 feet into a wooded valley that snakes around the edges of adjacent farm fields. Due to the naturally sandy soils, the Swobodas farmed with a berm between the crops and the edge of the field to minimize erosion from typical rainfalls.

In mid-July 2016, huge rain storms hit west central Wisconsin, causing significant flooding and related damages throughout the region. A single storm dumped eight inches of rain on the Swoboda's farm, something Bryon had never experienced before. The unprecedented volume of water pummeled the edges of his field and adjacent drainage ways. When the storm subsided, a gully the length of a football field was left running like a massive gash up the field.

"It looked like a tornado went through there," said Bryon. "We could have fit both our silos and the barn down in that washout. We had it sealed off with a berm ... but I'm sure over the years, rain ate away at it until it was unstable, and then this storm just wiped it right out."

Unable to secure federal disaster relief, Bryon turned to Chippewa County Department of Land Conservation and Forest Management (LCFM) for help. After an initial site evaluation, Chippewa LCFM and Bryon secured funding to fix the gully through Wisconsin's Soil and Water Resource Management (SWRM) grant program. This enabled the Chippewa LCFM to approach the project thoroughly, conducting an engineering evaluation, a site topographic survey, and engineering design computations. Additionally, a comprehensive review of the operation was performed to make



Eroded Channel: 22-foot deep gully cutting through the Swoboda's crop field



Jared Looney, Chippewa County Engineering Intern, measures gradation of limestone riprap

sure the operation met other state soil and water conservation standards.

Figuring out the best long-term solution to fix the gully came down to either a small dam or a rock-lined channel, which as David Nashold, Chippewa LCFM environmental engineer noted, was a "very pivotal decision" for the project.

"We've done projects like this before," said David, "but we don't often do these kinds of grade control structures, at least not as frequently as other counties" in the region, where erosion control



tends to dominate conservation projects. David discussed design solutions with Patrick Schultz, agricultural engineer for the Department of Agriculture, Trade and Consumer Protection from Altoona, and together they determined the best solution.

Patrick said although “ponds are typically preferred, as they better control flooding and reduce the flow from rain events, this particular site was too flat for a good pond and would have flooded too large an area to be able to control the desired storm event. In the end, a rock-lined channel seemed to best fit the site and meet everyone’s goals.”

The rock-lined channel became the central component to a creative technical solution that also included a system of water-diversion berms, grass buffers, and rock-checked dams. The south bank of the gully, where parts of the farm field had collapsed, was graded, seeded, and lined with erosion control blankets. The mouth, slope, and bottom of the gully were graded and reinforced with rock riprap to hold soil in place when high-volume storms occur.

A berm and grass buffer were built between the crop field and the waterway to catch runoff from the field and divert it to the head of the channel. Three rock-check dams, one at the mouth and two at the base, were installed to manage the volume of water that was being diverted into the channel. Additionally, a smaller gully was partially filled and capped with topsoil to prevent damage on the far side of the berm.



Bottom of the channel, during placement of geotextile fabric and riprap

By design, the channel is expected to withstand future rainfall and effectively prevent further land loss. The project was completed in November 2017.

Ultimately, this was a significant conservation project for the region “to curtail the loss of farmland and limit deposition of sediment into a trout stream,” said David. The project “would not have been possible without state funding for construction and conservation staff support.”

As Bryon prepares for the next planting season, he says he feels good to have the project finished. “We lost an acre of land, but even this year, I’d have lost more because of the water that is running down through there now. It would have kept eroding into the field and caused more problems this year and into the future.”



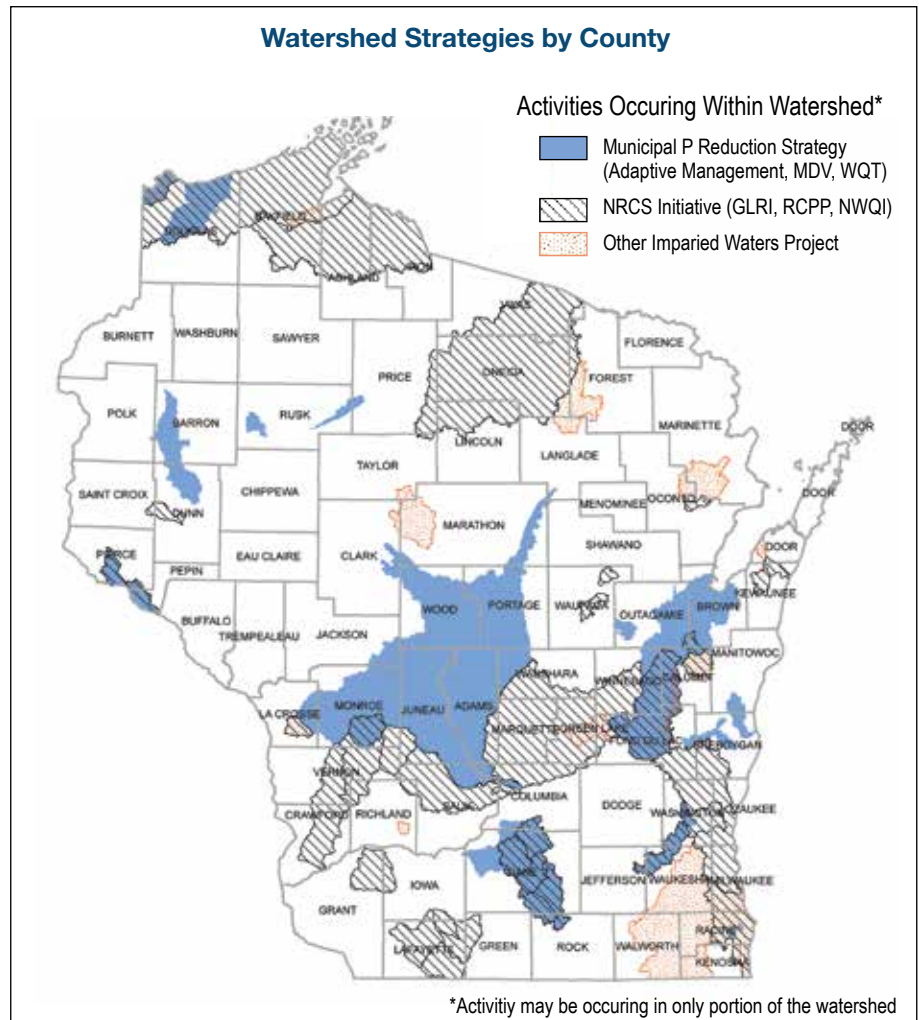
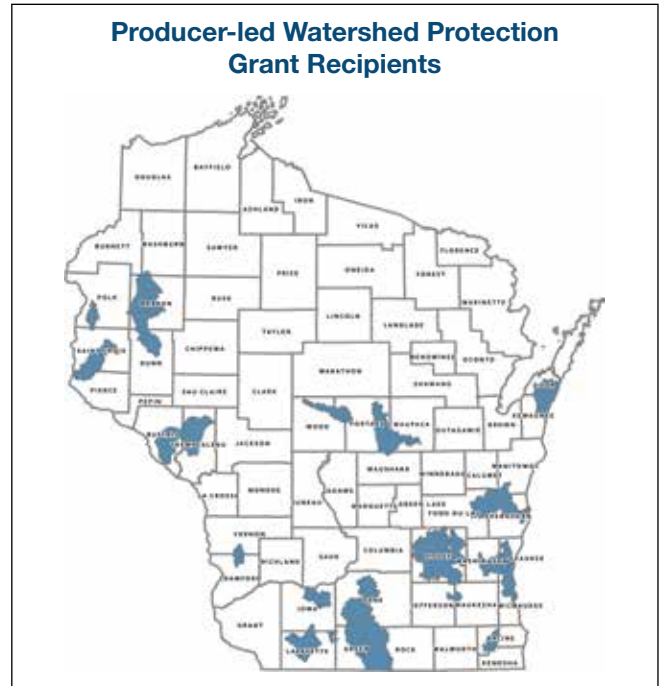
Finished project: Rock-lined channel and seeded slopes protected with erosion control mats



Watershed Strategies in Wisconsin

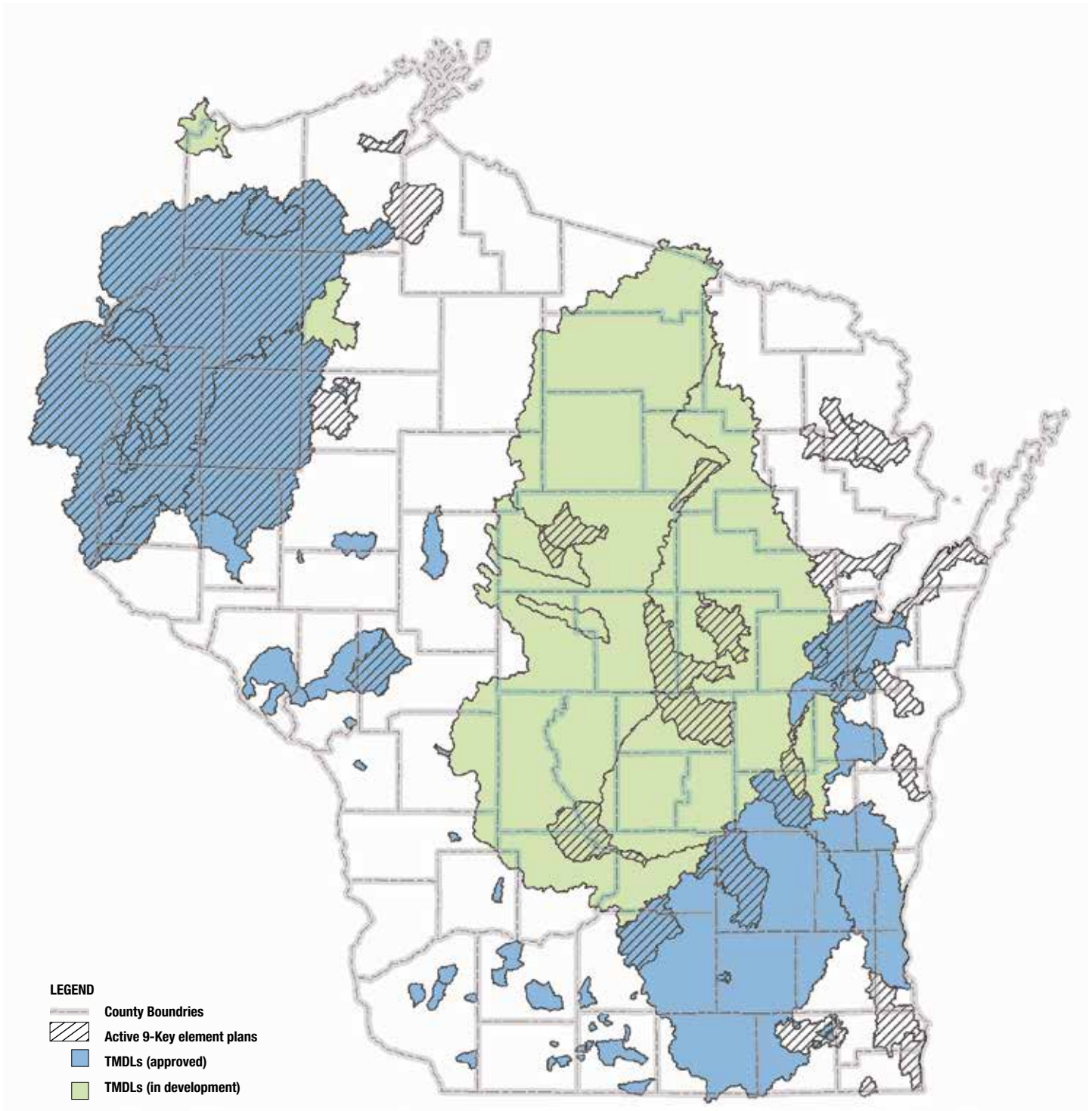
Watershed-based natural resource management is a useful strategy to address specific resource considerations in land and water resource issues. In Wisconsin, conservation partners use a variety of watershed-based conservation strategies to manage natural resources and address challenges.

Local, state and federal watershed programs support efforts to develop watershed plans designed to identify and prioritize resource needs, and to actively implement solutions to these issues. Locally, producer-led watershed protection efforts have increased in Wisconsin in the past year, supported by state grants for these groups. Wisconsin's 9-key element planning program provides a framework for improving water quality in a holistic manner within a geographic watershed. Wisconsin also works with point source permittees interested in achieving phosphorus compliance limits through work within watersheds using municipal compliance options that include adaptive management, water quality trading and the multi-discharger variance programs. The federal government also supports watershed-based conservation activities by targeting conservation funding through initiatives such as the National Water Quality Initiative, the Mississippi River Basin Initiative, and the Resource Conservation Partnership Program.





Watersheds with Approved TMDLs or TMDLs Under Development and Active 9-Key Element Plans





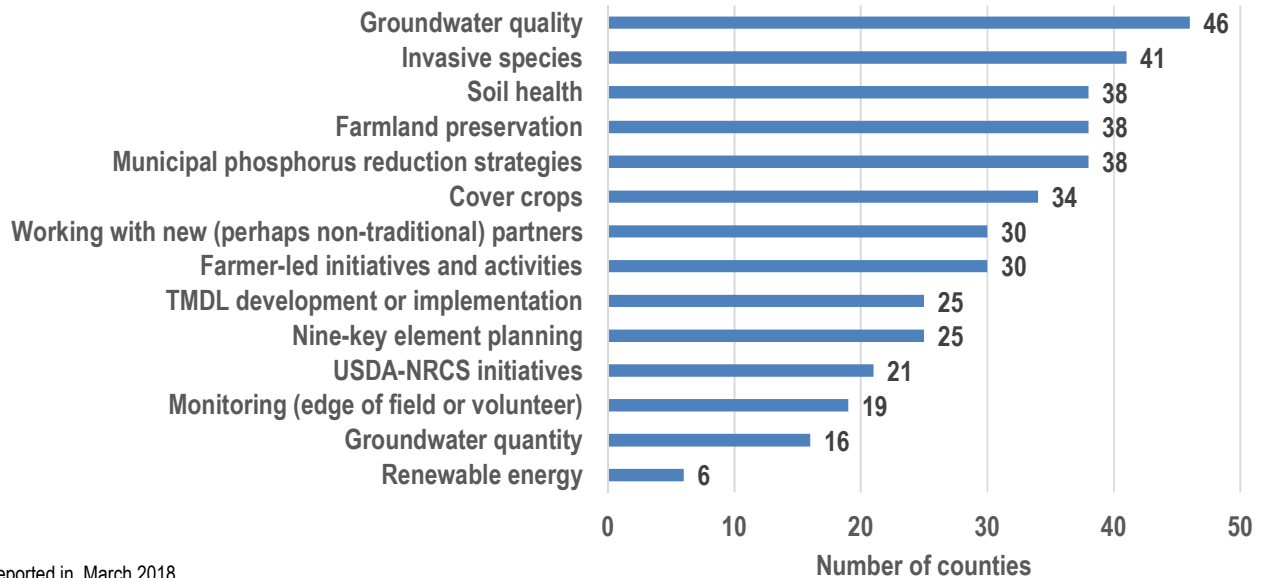
Outreach and Education Activities

Successful soil and water conservation relies on more than putting conservation on the land. It requires an understanding of both the resource need and the benefit of the conservation effort. Strong, diverse educational programs are critical to fostering this understanding. In 2017, outreach and education efforts reached various audiences through school-age programs, landowner meetings, adult education, and education for educators. These opportunities focused on the range of resource issues throughout the state, from general environmental science to the specifics of land use and nutrient management.

Number of County-Led Outreach and Education Activities in 2017

Tours	82
Field days	296
Trainings or workshops	346
School-age programs	713
Newsletters	170
Social media posts	1433
News releases or stories	422

Local Emerging Conservation Topics in Wisconsin Counties*



*As reported in March 2018





Vernon County

Vernon County Land and Water Conservation Department worked with over 600 local students to share a hands-on, multi-sensory learning project focused around watersheds. At the end of the project, students created posters around the 2017 Conservation Poster Contest theme: “Watersheds, Our Water, Our Home.” Vernon County entered 630 posters to compete in the statewide and national competition.



Ben Wojahn and Sarah McDowell of Vernon County teach watershed mechanics to 4th grade students at Prairie View Elementary

Waukesha County

Environmental education for children, high school students and adults has experienced a revitalization in Waukesha County, through an agreement between the county, Waukesha School District and Carroll University to collaborate on environmental education and nature center programs. The County Land Resources Department focuses on connecting the community with UW-Extension resources, the Retzer Nature Center, professional development opportunities, and recycling programs. Additionally, two major opportunities for educators are provided: a county land conservation teacher tour and Project WET.



Pepin County

Through a unifying concern of high nitrate concentrations in drinking water, the Pepin County Departments of Health, Land Conservation, Land Management, and UW-Extension came together to join the ThinkWater School. ThinkWater School provides tools and skills needed to facilitate changes through more effective adult and community water education and outreach. Pepin County was interested in developing a comprehensive county water quality program. This joint effort developed new meta-mapping techniques which dissect the complexities of water quality issues within Pepin County. The project facilitates discussions with stakeholders and landowners on water quality issues, which identify avenues for improvement.



The Pepin County ThinkWater Team with “Dripper.” L to R: Heidi Stewart, Health Dept.; Pat Poeschel as “Dripper;” Chase Cummings, Land Conservation; Maria Nelson, Land Management; Mike Travis, UW-Extension.

Students gain hands-on experience through enhanced environmental education programming in Waukesha County.



Pioneering Project Removes Phosphorus in Sheboygan County

Nestled in northwestern Sheboygan County, Elkhart Lake is the largest waterbody in the Kettle Moraine region. Carved from receding glaciers, the landscape today is characterized by rolling hills and small pockets of sharp depressions, now filled with water, known as kettles.

It is this landscape that has attracted vacationers and vintage car races to the area for more than a century. Today, the lake's shores are almost entirely privately owned, single lot residential units, with the Osthoff Resort sitting prominently on the east bank.

The surrounding land use beyond the lakeshore is mostly agricultural and the lake supports intense recreational use, especially fishing and boating.

In recent years, the lake's water quality has been threatened by toxic algae blooms, in part caused by heavy dissolved phosphorous loadings from upstream. The blooms have caused great concern for Elkhart Lake's community.

Collaborating on potential solutions to the problem, the Elkhart Lake Improvement Association (ELIA), Sheboygan County Planning and Conservation Department (PCD), Sheboygan River Basin Partnership (SRBP), and local landowners began investigating where much of the phosphorous was originating.

Through this collaboration, the partnership determined that the excess phosphorous levels were attributed to upstream farming operations collectively. Common in this region of Wisconsin, many farm fields have a conglomerate of subsurface concrete tiles beneath them, some dating back more than 60 years. The concrete tiles



Elkhart Lake (view from western bank)

help dry out fields faster, but also directly channels excess field runoff to discharge points in nearby creeks. Those creeks eventually flow into the lake.

Once the source of the phosphorus was identified, the next step was to identify a potential site for a project. But finding a proper site location proved difficult, since many of the neighboring fields have absentee ownership and farming is contracted. Local landowner and farmer John Jens became instrumental for the project. John's field included



Completed iron filtration bed on the north edge of Jen's property (looking north towards the lake)



Dissolved phosphorous monitoring stations/water volume control boxes (R- intake; L- outflow)

a series of these concrete tiles that funneled water to the north property line and he agreed to give up half an acre of his land about a mile south of the lake.

“It’s great to have people like John in the county who are willing to do something like this,” said Emily Stewart, Sheboygan County PCD Associate Planner. “With this area in general, we were pretty limited. For one thing, the elevation change is an issue, but for another ... the farms in the area are pretty big, so there’s only a handful of properties in the watershed that could be the cause of the problem.”

Sheboygan County PCD saw this project as an opportunity to try something that had never been done before in Wisconsin. The collaborators decided to install a phosphorus-reducing iron filtration bed at the edge of John’s property. First used in a project in Minnesota, this new technology filters out dissolved phosphorus in water using iron-enriched sand.

The project was cost-shared between Sheboygan County PCD and ELIA for the construction, monitoring, and maintenance. The upfront costs of the initial projects totaled \$77,900, which included the filtration bed, a downstream grassed buffer, a phosphorus-reducing septic system, and repair of a broken subsurface tile discovered during the site planning on John’s property. The price tag for the filtration bed was \$40,000, which includes engineering costs, installation fees and materials. The projected 10-year cost of the project, which includes monitoring, landscaping, and

maintenance is an additional \$15,000.

Installed in October 2017, the 40x10x3 foot filter was constructed at the edge of John’s property, where much of the field runoff was funneled. Pipes channel the water to a control box, which directs the flow into the filter. The water then runs through the iron-enriched sands that strip dissolved phosphorus from the water before exiting. A second water control box was installed at the end of the filter and both boxes measure the dissolved phosphorus levels.

Preliminary water testing indicated an 88 percent reduction in dissolved phosphorus. “We’ve seen some fluctuation since then,” Emily said, “as we’ve slowed down through the winter season. Our department will be collecting grab samples and keeping record of weather conditions, so when we have more data, we can look for better



Full size of the filter; half acre in size

correlations.”

The Sheboygan County PCD and ELIA hope that this project will spur more of these in the future, based on its success. Additionally, the collaborators are hoping more septic systems that use phosphorus reduction technology will be installed for the residential homes lining the shores of Elkhart Lake, following the collected data of the initial system. Many residents along the lake “genuinely want to do something good for the environment and the habitats here,” said Emily, “and these kinds of projects wouldn’t be possible without folks like that.”



Rainy Day Conservation in Northern Wisconsin

In the far northern area of the state, county land and water conservation departments and partners are hard at work protecting Wisconsin's lakes and streams. Maintaining a healthy connection between land and water resources relies upon building connections between partners to successfully conserve and protect these resources. In 2017, strong partnership proved especially important to address the conservation challenges and opportunities produced by the heavy rain storms in Bayfield, Vilas, and Florence counties.

Rescuing a Failing Streambank in Bayfield County

Whittlesey Creek drains roughly 38 square miles in Bayfield County and empties into Lake Superior near the Ashland harbor. It flows through the Whittlesey Creek National Wildlife Refuge, a sanctuary for coaster brook trout, a native trout that spawns in the creek and spends its adult life in Lake Superior.

Streambank erosion occurring several hundred feet upstream became a threat to this small refuge in 2016 when a big storm accelerated the problem. Overnight, the rain washed a large amount of sediment away, causing the bank to slump, and brought the streambank up to a town road bridge's concrete wall and within five feet of a power pole. With the power pole and bridge in jeopardy, and the resulting sedimentation of the creek from the failing bank, something needed to be done.

Mike Mlynarek of the U.S. Fish and Wildlife Service brought the issue to the attention of the Town of Barksdale and Bayfield County. Extensive work had already been done on fish passages and stream crossings in the area, and finding a quick solution to the problem was imperative. The town budgeted for the project and covered the majority of the cost, while additional cost-sharing through Bayfield County helped make the project possible.

Travis Tulowitzky, conservation technician for Bayfield County's Land and Water Conservation Department, completed a project plan to fix the bank issues in March of 2017. After the power company raised the overhead lines and relocated the pole, a local contractor got to work on the project. Despite continued heavy rains throughout 2017, Bayfield County's wettest year on record, the project was completed in July 2017.

"Finishing this project was important to make sure the creek isn't contributing sediment to Lake Superior," explains Tulowitzky, "and important for protecting the spawning habitat for the trout."



The completed streambank riprap installed on Whittlesey Creek reduces sedimentation and protects the stream crossing



Vilas County Tackles Runoff

“Less than 2% of land in Vilas County is in agriculture, and most of that is in cranberry production,” says Mariquita Sheehan, a conservation specialist with Vilas County. She explains that for many farmers, farming is a side job due in part to the long winters. So it was out of the ordinary when landowners Karl Jennrich and Mary Rasmussen of Conover contacted the Vilas County Land and Water Conservation Department with concerns about runoff at a high traffic livestock gate area. This was a new type of project for the county.

At the site, cattle accessed both a watering trough and a protective shed. Muddy conditions from the traffic were exacerbated by the spring melt and recent heavy rains. Erosion to a nearby stream was clearly an issue. “The soils were compacted, disturbed, and did not drain even after a minor rain event,” says Karl. “The cattle got really muddy.” He explains that the horses and cattle were congregating to get out of the wind, further compacting the soil. To make matters worse, water was flowing downhill into the shed and creating several feet of muck, which was especially problematic because it took a long time to dry out.

Karl and Mary dealt with this issue every spring, but the heavy rains of 2017 pushed them to approach the county department for help. The



Muddy conditions around the water fixture were made worse by heavy rains, and erosion to a nearby stream was evident

county had previously worked with them on a watering fixture and fencing. Using county cost-sharing, and working with a local concrete supplier familiar with requirements for concrete mix and sealant, they installed a 90-foot access road that consisted of two concrete slabs and a gravel apron to allow the runoff water to infiltrate and limit soil erosion to the stream. One patch of cement went next to the watering fixture and the other next to the shed. A couple layers of gravel were added at the gate where the cattle congregate. Not only was the gravel cheaper, but it also allowed for the heavy machinery to drive through. The final result allows the livestock to access water and shelter without compacting the soil and without contributing erosion to a nearby stream.

“Vilas County’s lakes are the backbone of the economy,” says Mariquita Sheehan. Vilas County boasts more lakes than any other county in the state and the county’s economy relies on visitors who travel to enjoy the county’s lakes. “Projects like this that can improve water quality are important to ensure the continued health of these waters.”



The newly installed concrete slab helps prevent soil compaction and soil erosion



Florence County Waters Benefit from Partnerships

In the Pine and Popple watershed near the Michigan border, the Wild Rivers area draws the interest of diverse partners to protect its resources. About 18 years ago, the Lakes and Rivers Association began looking into stream crossings and created an inventory of the sites. This inventory helped identify priority sites for conservation work and creates eligibility for funding.

Since then, the Wisconsin DNR, Florence County, and DATCP completed work to address resource concerns at many sites that provide high public benefits. Every spring sees a recurrence of washouts, where road gravel is lodged in channels, ultimately changing the characteristics of a stream channel. Project plans to fix the washouts present an opportunity to incorporate practices that enhance the stream crossings for habitat, too. As Stacey Dehne from DATCP puts it, “We want the crossing to be good for people and the stream.”

In 2017 two undersized culverts on Woods Creek were identified for replacement. Woods Creek is the highest quality trout stream in Florence County, according to Wisconsin DNR surveys. Due to the heavy rains in 2017, another culvert on an unnamed stream was affected. Although not initially planned for, the people and equipment were already in place to make the project cost effective.

These are just the latest of about 30 that have been installed on the creek over the years. “The new structures are very large,” says Stacey. “They are outside of our typical bag of tricks.” No maintenance is needed and no washouts have occurred around the culverts replaced in the past 17 years.

The partnerships are what make the work successful. The project was funded in part by grant money provided by We Energies, through the Mitigation and Enhancement Fund (MEF). MEF grants are used for projects that mitigate, improve,



Significant 2017 rains and an undersized culvert led to flooding



The new culvert has a higher capacity. The old undersized culvert can be seen in the background

and enhance fish and wildlife habitat within the Upper Menominee River Basin. “The We Energies grant funding played a large part in making this work possible,” says Jonathan Simonsen from the Wisconsin DNR. Florence County and the Town of Florence also provided financial assistance.

The work continues and already plans are in motion for next year to prepare for future floods that can cause economic and environmental hardships. For seasons to come, these culverts will continue to prevent washouts, fulfilling the goal of being good for people and the stream.



Wisconsin Conservation Activities in 2017 and 2018

Select Conservation Activities Implemented in 2017

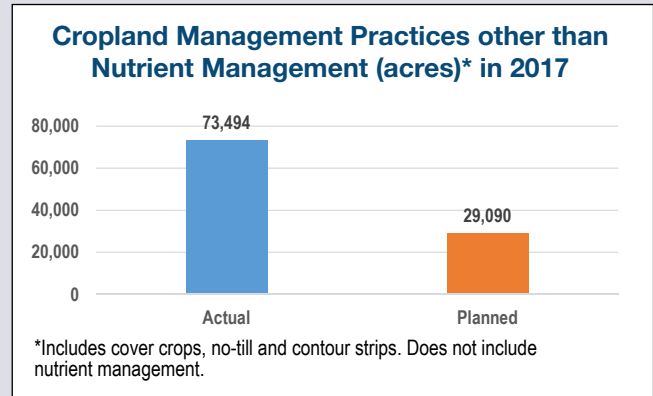
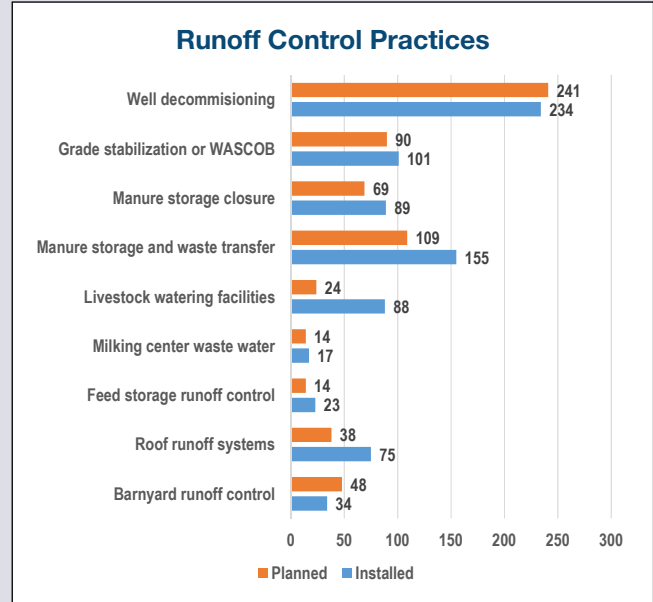
Just as Wisconsin’s natural resources are diverse, the conservation challenges affecting these resources are varied. Each year, county conservation departments in all of Wisconsin’s 72 counties work closely with farmers, landowners and other conservation partners to address soil and water conservation issues.

The information on the following pages summarizes some of the work completed in 2017 and highlights activities planned for 2018. This work is carefully prioritized based on resource needs and the resources available to address specific resource challenges. One tool used to identify local soil and water resource needs and to develop strategies to address these needs is the county’s land and water resource management plan.



Feedlot spreader box. Photo: Tom Fratt, Ashland County Land and Water Conservation Department

Number of Select Conservation Practices Installed in 2017 Compared to Estimates From County Work Plans



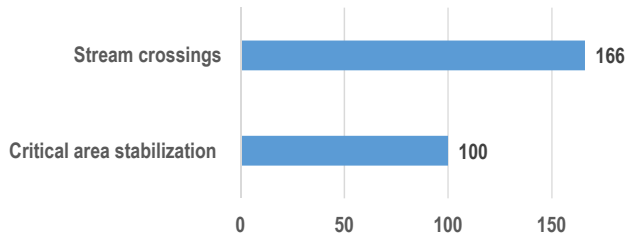
Soybean growth: Planted with Cover Crop ZRX Roller/Crimper. 7/17/17

Soybeans planted with cover crops, following roller crimper. Photo: Mike Mushinski, Brown County Land and Water Conservation Department.

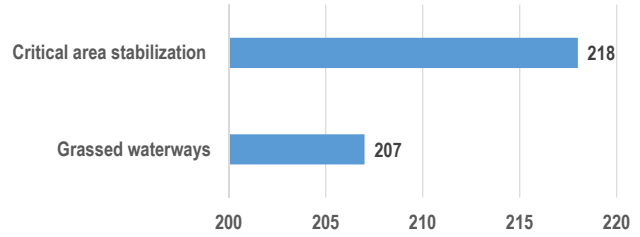


Other Select Conservation Practices Installed in 2017*

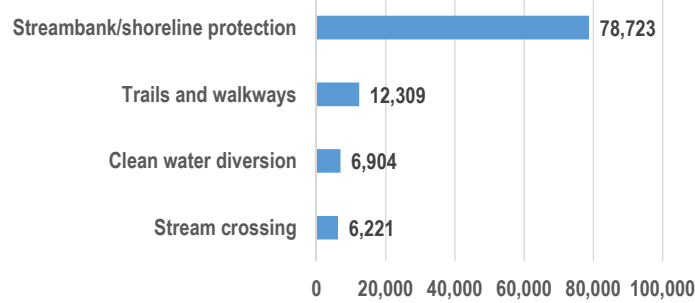
Practices Installed by Acres



Practices Installed by Number

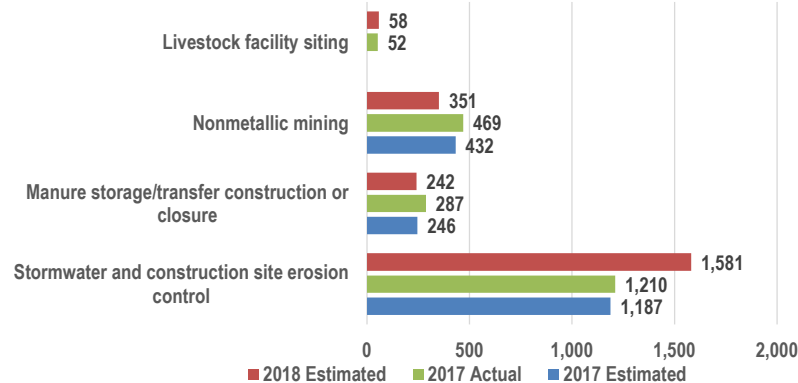


Practices Installed in Feet



*As reported by counties March 2017

Number of Estimated and Actual Permits Issued by County Conservation Departments



Status of Local Permit Compliance

4,808 Permitted facilities inspected for compliance with permit

74 Permitted facilities issued notices of violation or similar determinations

24 Stop work orders issued

23 Permitted facilities issued citations or fined for violations

15 Permitted facilities referred to corporation counsel for commencement of legal proceedings



Wildlife, Wetlands and Habitat Activities in 2017

66 Counties who handled wildlife damage claims

29 Counties who worked on wetland restoration projects

49 Counties who held tree and plant sales

23 Counties who did related work, including pollinator habitat, and terrestrial and aquatic habitat projects

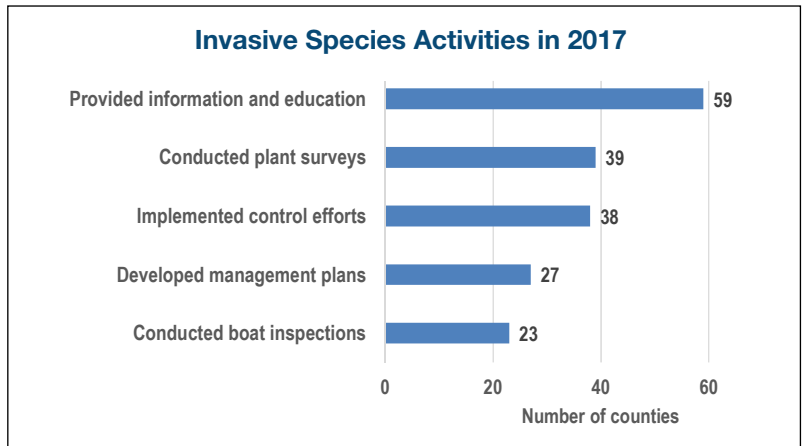


In addition to reducing nutrient and sediment runoff (page 4) the Conservation Reserve Enhancement Program (CREP), also provides habitat for wildlife. Pictured on the “Rick” Frey property near Plain in Sauk County are a group of drake wood ducks surrounding a lone hen. Through CREP, Mr. Frey installed wetland restorations and grass filter strips along an extensive drainage ditch network. Nearby is one of the 25 wood duck nesting boxes installed by Mr. Frey. In 2017, statewide about 500 rural landowners enrolled about 6,000 acres into CREP at a state cost of about \$1.8 million. Each state dollar invested in this conservation program leverages more than \$7 in federal farm bill payments.

Invasive Species Work in 2017

54 Counties who did aquatic invasive species work

51 Counties who did terrestrial invasive species work



Shoreline restoration project on Lower Red Lake. Scott Frank, Shawano County Land Conservation Department.



Conservation Activities Planned for 2018

Cropland and pasture practices

- **1,000** acres of contour strips
- **33** water and sediment control basins
- **32,400** acres of cover crops
- **22,850** acres of no-till
- **60** counties will help review and revise nutrient management plans
- **71** grade stabilization structures

Livestock-related practices

- **107** manure storage facilities
- **71** manure storage closures
- **57,8500** feet of livestock fencing (10.9 miles)
- **4,040** feet of clean water diversions
- **45** barnyard runoff control systems
- **14** watering facilities
- **25** roof runoff systems
- **15** feed storage runoff control systems
- **21** milkhouse treatment practices
- **48** stream crossings
- **8** roofs
- **48** grazing plans

Other water quality practices

- **198** well abandonments
- **66,975** feet of shoreline protection (12.6 miles)
- **69** acres of critical area stabilization



Conservation Site Visits and Inspections planned for 2018

- **3,219** farmland preservation conservation site visits
- **1,376** visits to determine compliance with state standards under NR 151
- **456** county animal waste permit inspections
- **118** livestock facility siting permit inspections
- **2,285** stormwater and construction site erosion control permit inspections
- **935** non-metallic mining permit inspections

Other Conservation Activities Planned for 2018

Water quality monitoring

- **29** counties are involved in lake and/or stream monitoring
- **27** counties have a groundwater monitoring program

Invasive Species

- **30** counties conduct invasive species surveys
- **38** counties conduct education
- **27** counties conduct control programs

Forestry and Wetlands

- **27** counties engage in forestry-related work
- **19** counties will install wetland restorations

Outreach and Education Planned for 2018

- **78** tours
- **174** field days
- **247** trainings and workshops
- **224** school programs
- **40** counties distribute newsletters
- **58** counties release stories to the media
- **37** counties use social media



Conservation Practices Installed in 2017 with State and Federal Funding

Table 1: Practices Installed Using Soil and Water Resource Management Funds in 2017, WI DATCP

Conservation Practices		Practices Installed		
		Acres	Feet	Number
Soil Erosion Control	CREP Equivalent	2.87		
	Animal Trails and walkways		6,215	
	Cover and green manure crop	999		
	Critical area stabilization			37
	Diversions			
	Field windbreaks		4,301	
	Grade stabilization structures		35,456	
	Riparian buffers	818		40
	Sinkhole treatment			
	Streambank crossing			1
	Streambank and shoreline protection		3,561	
	Subsurface drains		24,469	
	Terrace systems			9
	Underground outlet		2,000	
	Water and sediment control basins			33
	Waterway systems			25
	Manure Management	Manure storage closure	1343	
Manure storage systems				40
Access roads				20
Barnyard runoff control systems			4,634	
Livestock fencing				16
Livestock watering facilities			32,407	
Milking center waste control system				30
Nutrient management				4
Residue management				
Roof runoff systems		66,038		
Roofs				16
Waste transfer systems		266		9
Wastewater treatment strips				4
Other Practices	Prescribed grazing; permanent fencing		100	
	Prescribed grazing; est permanent pasture		109,761	

Continued on next page



Table 1 Continued

Conservation Practices		Practices Installed		
		Acres	Feet	Number
	Wetland development or restoration			153
	Feed storage runoff control systems	82		
	Well decommissioning			2
	Wetland development or restoration	14		
	Feed storage runoff control systems			2

Table 2: Agricultural Best Management Practices Installed in Calendar Year 2017, WI DNR

Best Management Practice	Installed Amount	Units
Access Roads and Cattle Crossings	150	Feet
Animal Trails and Walkways	200	Feet
Barnyard Runoff Control Systems	11	Number
Cover and Green Manure Crop	416	Acres
Critical Area Stabilization	4	Acres
Diversions	350	Feet
Feed Storage Leachate	2	Number
Heavy Use Area Protection	4	Acres
High Residue Management	1,156	Acres
Lake Sediment Treatment	1	Number
Livestock Fencing	2,300	Feet
Manure Storage Systems	9	Number
Roof Runoff Systems	5	Number
Roofs	4	Number
Streambank/Shoreline Protection	190	Feet
Subsurface Drains	3,600	Feet
Waste Transfer Systems	4	Number
Water and Sediment Control Basins	1	Number
Waterway Systems	1	Acres
Well Decommissioning	3	Number

Table 3: Urban Best Management Practices Installed in Calendar Year 2017, WI DNR

Best Management Practice	Installed Amount	Units
Storm Water Management Plan Development	3	Number
Information & Education Activities	3	Number
Urban Detention System	3	Number
Urban Infiltration System	1	Number
Urban Stormwater/Erosion Plan	18	Number
Urban Streambank Practices	881	Feet
Other Urban Practice	1	Number



Table 4: Top 40 Environmental Quality Incentive Program Obligated Practices by USDA-Natural Resources Conservation Service (includes all initiatives and special funding)

Practice	Practice Count (Number)	FY17 Obligation (Dollars)
Cover Crop	362	781,052
Prescribed Grazing	299	1,399,323
Fence	252	339,370
Mulching	169	347,537
Grassed Waterway	159	40,487
Critical Area Planting	157	515,887
Livestock Pipeline	149	250,009
Residue and Tillage Management, No-Till	148	70,904
Watering Facility	127	1,019,554
Heavy Use Area Protection	126	462,145
Forage and Biomass Planting	125	233,290
Brush Management	123	152,248
Obstruction Removal	122	1,920,949
Streambank and Shoreline Protection	115	189,092
Forest Management Plan - Written	104	421,453
Conservation Cover	88	308,096
Early Successional Habitat Development/ Management	86	169,765
Forest Stand Improvement	85	673,655
Comprehensive Nutrient Management Plan - Written	74	115,846
Stream Crossing	72	696,291
Grade Stabilization Structure	70	620,371
High Tunnel System	64	119,288
Spoil Spreading	61	198,231
Underground Outlet	60	1,138,176
Lighting System Improvement	58	100,105
Tree/Shrub Establishment	53	619,100
Access Road	52	242,055
Stream Habitat Improvement and Management	47	53,543
Tree/Shrub Site Preparation	41	3,306,230

Continued on Next Page



Table 4 Continued

Practice	Practice Count (Number)	FY17 Obligation (Dollars)
Waste Storage Facility	35	215,565
Subsurface Drain	34	307,544
Pumping Plant	34	780,335
Waste Transfer	33	77,035
Prescribed Burning	32	798,607
Waste Facility Closure	30	42,497
Irrigation Water Management	30	31,925
Roof Runoff Structure	26	7,099
Structures for Wildlife	24	130,354
Farmstead Energy Improvement	24	170,557
Wetland Restoration	24	170,557



**Wisconsin Department of
Natural Resources**
Bureau of Watershed Management

101 S. Webster St.
WT/3
Madison, WI 53703
Fax: 608-267-2800
<http://dnr.wi.gov/>



**Wisconsin Department of Agriculture,
Trade & Consumer Protection**
Bureau of Land and Water Resources

2811 Agriculture Drive
PO Box 8911
Madison, WI 53708-8911
608-224-4611
<http://datcp.state.wi.us>

The report is available on the following website:
<https://datcp.wi.gov/Pages/Publications/LandWaterAnnualReport.aspx>