

# 2018 Wisconsin Land and Water Conservation Annual Report



# 2018 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](http://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](http://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 taken on the Yanke Family's Echo-Y Farms in Sauk County. The Yanke's hosted the 2018 Conservation Observance Day. The farm earned the honor in recognition of their conservation efforts. The family rotationally grazes their cattle and have adopted cover crops.

# Contents

Introduction .....	2
Conservation Funding in Wisconsin in 2018 .....	3
Estimated Load Reductions in 2018.....	6
Methods Used to Estimate Phosphorus and Sediment Reductions by County .....	7
Restoring the Little Plover River Takes Collaboration .....	8
Watershed Strategies in Wisconsin.....	12
Expanding Farmland Preservation – A Partnership in Conservation and Land Protection .....	17
Storage Stories: Keeping Manure in Its Place .....	19
Nutrient Management: Building A Bridge to Conservation .....	23
Mapping the Path to Conservation Success in Manitowoc County .....	25
More Extreme Weather Calls for More Extreme Gully Fixes .....	27
Outreach and Education Activities .....	30
Wisconsin Conservation Activities in 2018 and 2019 .....	32
Conservation Practices Installed in 2018 With State and Federal Funding .....	37

## Figures and Maps

Sources and Causes of Impairment .....	4
Top Strategies to Target Areas for Conservation in 2018.....	5
Estimated Reductions From Conservation Practices in 2018.....	5
Methods Used to Estimate Phosphorus and Sediment Reductions by County .....	6
Producer-Led Watershed Protection Grant Recipients.....	11
Select Activities Occurring Within Watersheds in Wisconsin.....	12
Status of TMDLs in Watersheds.....	13
Status of Nine Key Element and Priority Watersheds.....	13
Water Quality Practices Obligated by NRCS, by Watershed, 2018 .....	14
Soil Quality Practices Obligated by NRCS, by Watershed, 2018.....	15
Areas with Farmland Preservation Zoning and Agricultural Enterprise Areas.....	17
Status of Nutrient Management Planning in Wisconsin Counties, 2018.....	23
Conservation Issues County Conservation Departments Dealt With in 2018.....	31
Top Three Conservation Issues for County Conservation Departments in 2018 (In Time Spent).....	31
Cropland Management Practices Other Than Nutrient Management, in Acres.....	32
Cropland Management Practices, by Number.....	32
Practices Installed by Number .....	32
Practices Installed by Feet .....	32
Runoff Control Practices .....	33
Number of Estimated and Actual Permits Issued by County Conservation Departments, 2018.....	33
Invasive Species Activities in 2018 .....	34

## Acknowledgments

### Land and Water Conservation Board members (During 2018)

- Mark E. Cupp, Chair
- Carl Chenoweth
- Lynn Harrison
- Eric Birschbach
- Dave Solin
- Patrick Laughrin
- Mary Anne Lowndes
- Andrew Potts
- Keith Foye

### Advisors to the Land and Water Conservation Board

- Greg Biba, FSA
- Ken Genskow, UW-Extension
- Angela Biggs, NRCS
- Francisco Arriaga, UW-CALS
- Kurt Calkins, WI Land + Water
- Matt Krueger, WI Land + Water

### Agency Contacts

- Coreen Fallat
- Corinne Johnson

Story development, graphic design and mapping by Donna Gilson, Elliot Meyer, Natalie Cotter, Ryan Erisman, Maggie Jungwirth, and Brian Loeffelholz



# Introduction

From extreme flooding events to concerns about water quality, this past year underscored the importance of finding solutions to effectively address the broad spectrum of conservation challenges across Wisconsin. Through its stories, maps and photos, the 2018 Wisconsin Land and Water Annual Report highlights how Wisconsin's conservation network works together to meet these challenges. This year's report features over 15 counties and shares how their stories of education, innovation, partnerships, and site-specific projects are all pieces of the conservation puzzle.

The benefits of effective conservation work are seen in environmental improvements on the land, and conservation actions create a ripple effect of benefit for our communities, businesses, farms, and citizens. It is through strong partnerships, dedicated professionals, and engaged farmers, landowners and residents that Wisconsin's conservation partnership continues to make progress each year to improve and protect the health of our state's soil and water resources.



*Grassed Waterway in June. Photo: Calumet County*

## Conservation Funding in Wisconsin in 2018

**\$11,337,045**

in state funding to cost-share agricultural and urban conservation practices (\$5,254,525 from DNR and \$6,082,520 from DATCP).

**\$9,075,009**

in state funding available for local conservation staff and support.

**\$3,105,490**

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

**\$1,201,472**

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

**\$857,480**

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

**\$55,200,000**

from the federal Environmental Quality Incentives Program (\$37.2 million) and the Conservation Stewardship Program (\$18 million) through USDA-NRCS for conservation activities.

\*As reported by the counties in March 2019.

*Photo: Outagamie County*



## 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 2, 2018, added 244 new waterbody segments. Thirty-five listings, one each in 35 waterbodies, were removed from the 2018 list.

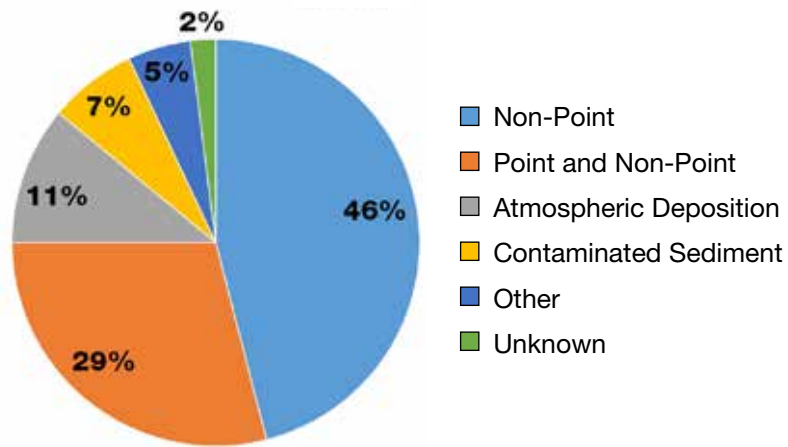
Seventy-five percent of Wisconsin’s impaired waters are listed due to nonpoint source pollution, or a combination of nonpoint and point sources of pollution. A majority of the listings are waters that exceed total phosphorus criteria. A significant number of new listings are based on poor biological condition. To learn more, review the 2018 Impaired Waters List on the DNR web site at:

[https://dnr.wi.gov/topic/impairedwaters/2018IR\\_IWList.html](https://dnr.wi.gov/topic/impairedwaters/2018IR_IWList.html).



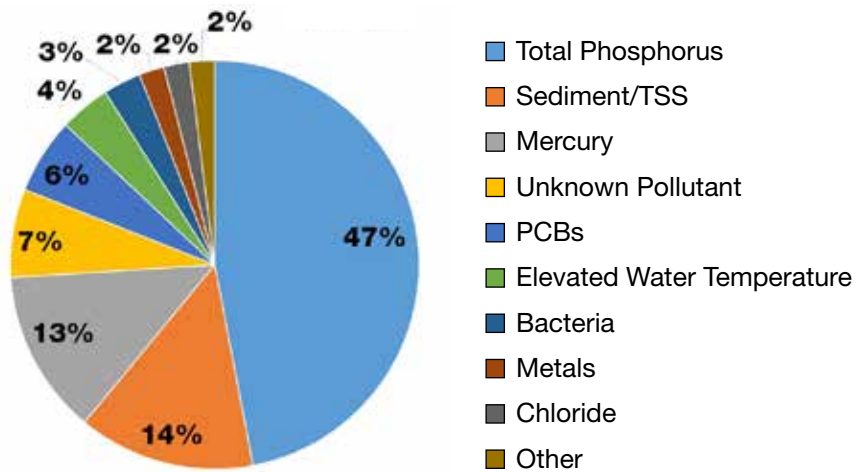
*Water and sediment control basin in field following a June rain. Photo: Calumet County*

### Sources of Impairment



*Impairment source categories for impaired waters listings included on the 2018 impaired waters list.*

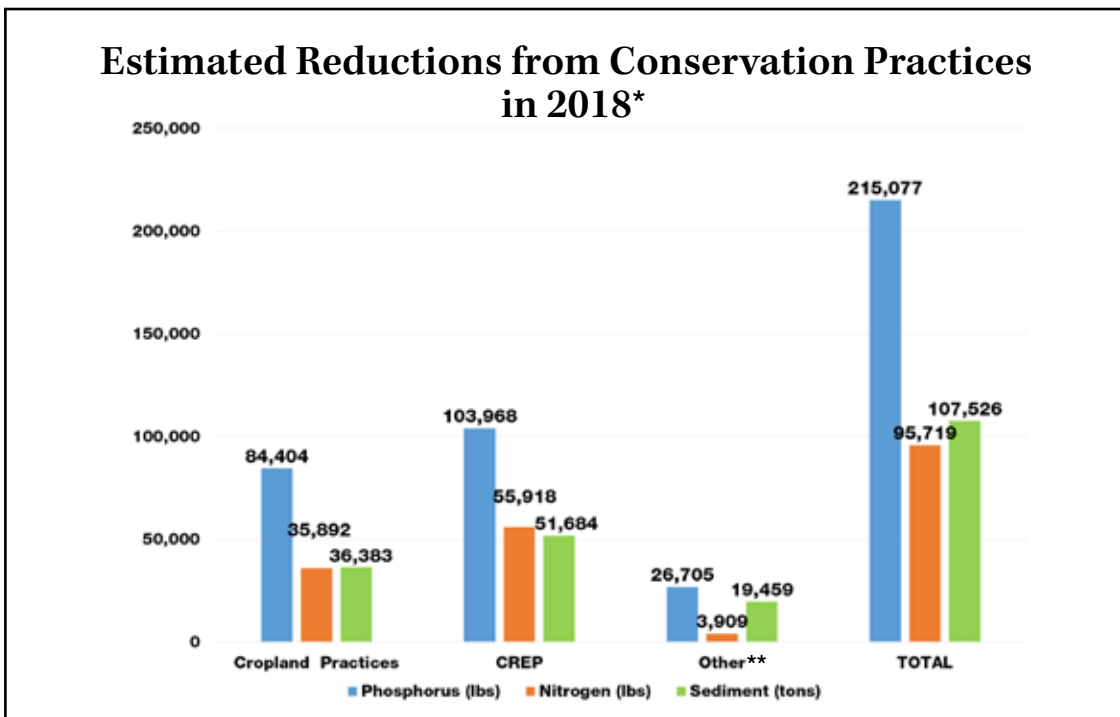
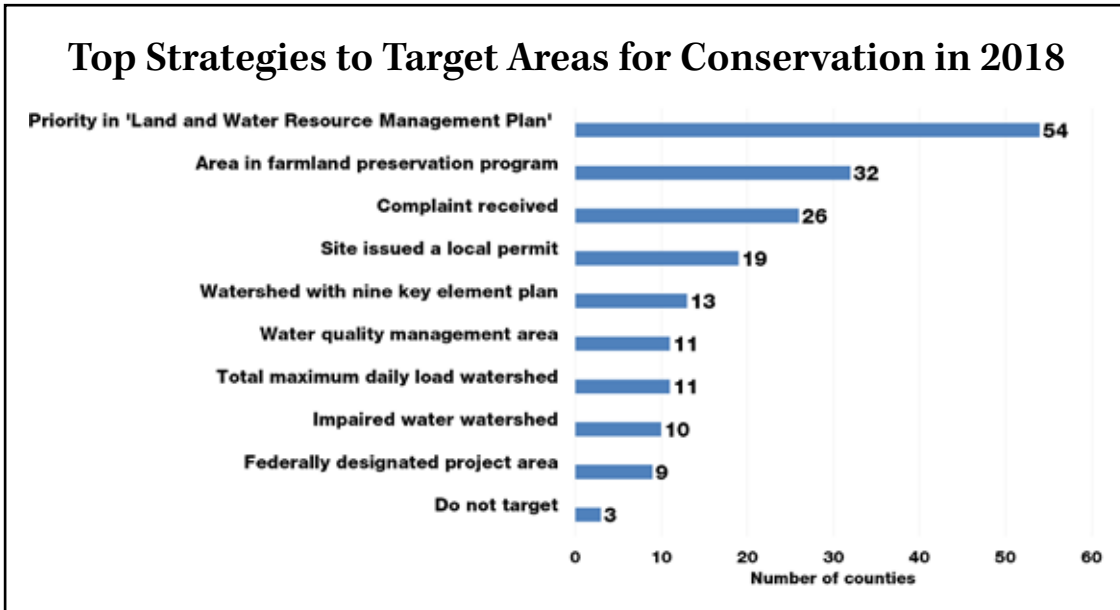
### Causes of Impairment



*Causes of impairment (or pollutants) for waters included on Wisconsin's 2018 CWA Section 303(d) list of impaired waters.*

# Estimated Load Reductions in 2018

Sources of phosphorus, nitrogen and sediment can be reduced by identifying priority areas for conservation, and targeting these areas for the implementation and installation of practices. Conservation practices designed to address these specific natural resource challenges can lead to an improvement in the quality of soil and water resources. County conservation departments use a variety of strategies to target areas for conservation and incorporate these priority areas into their annual work plans.

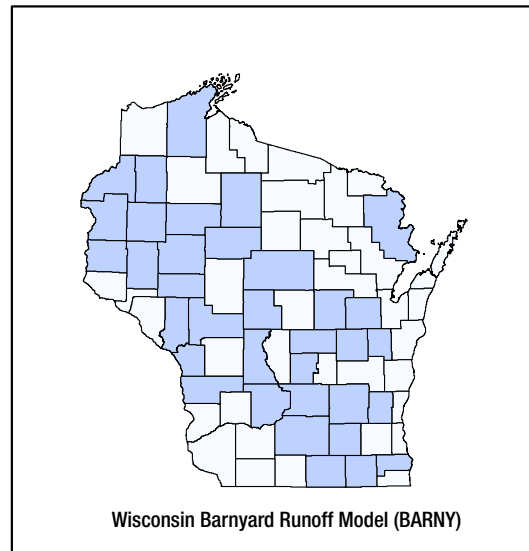
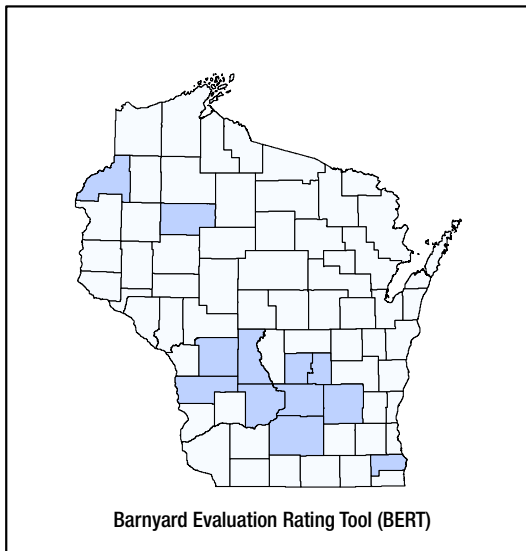
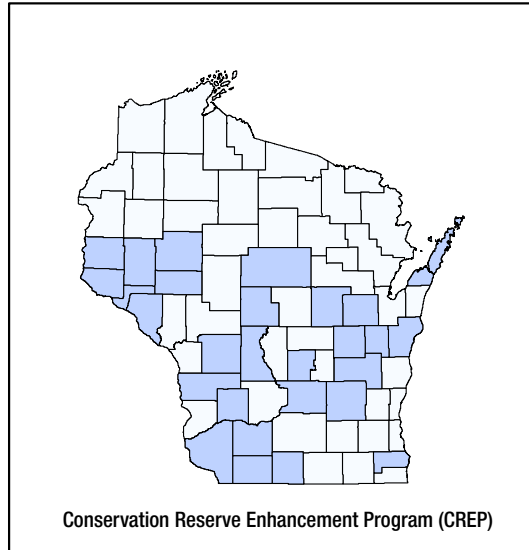
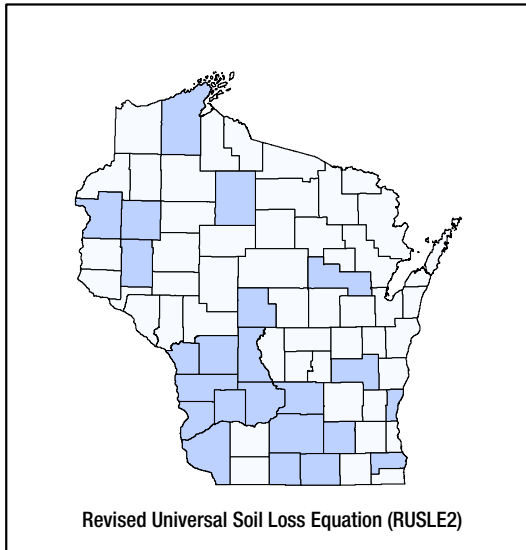
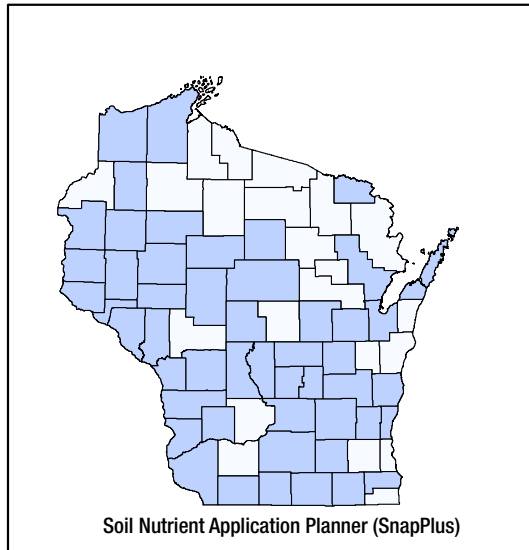
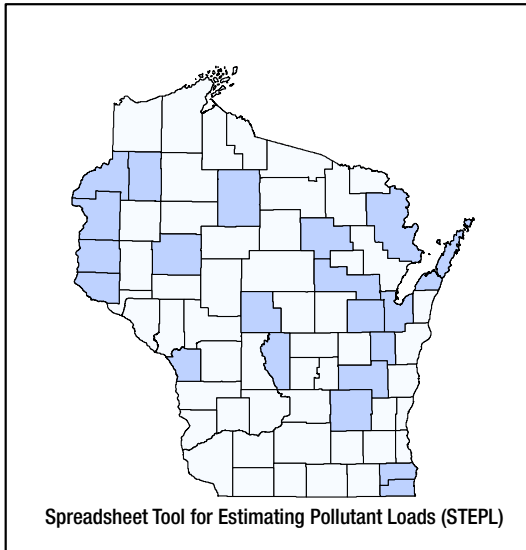


\* Not all reductions of phosphorus, nitrogen and sediment achieved through conservation practices implemented in 2018 are tracked and reported. The numbers shown here capture only the known estimated reductions in 2018 as reported by counties in March 2019, or provided in the Conservation Reserve Enhancement Program's annual report. As a result, the numbers shown here are only a fraction of the likely total reductions in phosphorus, nitrogen and sediment from conservation efforts in 2018.

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



# Methods Used to Estimate Phosphorus and Sediment Reductions by County\*



\* As reported by counties in March 2019.

# Restoring the Little Plover River Takes Collaboration

Last October, a crowd of about 50 people gathered in a farm field east of the Village of Plover to watch a dozen shovels sink into the sandy soil. The groundbreaking ceremony officially kicked off the Little Plover River Watershed Enhancement Project, a multi-organization approach to restore one of the most notoriously endangered rivers in Wisconsin.

Described as a “landmark moment” by Wisconsin State Senator Patrick Testin, the ceremony marked a significant step in reversing years of uncertainty with tangible progress. The project, a collaborative effort between the agricultural industry, conservation groups, multiple levels of government, and citizens, would have been hard to envision just a decade ago when dead trout found in a dried, cracked streambed of the river made headlines across the state.

What has transpired around the Plover community’s fragile watershed over the past five years was no small feat; the stakeholders and investments behind the Little Plover River Watershed Enhancement Project reflect the determination of local leaders and citizens to work together to improve the river – an integral part of the community’s identity.



*Little Plover State Fishery Area. Photo: WI L+W*



*Wetland restoration where water ponds behind a 2 to 3 inch berm before outflow or infiltration. Photo: DATCP*



A tributary of the Wisconsin River, the Little Plover River's surface water basin is relatively small, extending roughly 21 square miles through the Village of Plover and east into Portage County. Between 80 and 90 percent of the river's water comes from

groundwater, rather than from surface water runoff. This is a distinctive feature in the Central Sands region of Wisconsin, where rainwater and snowmelt are quickly absorbed into the sandy soils and naturally discharge in adjacent waterbodies.

Since 2004, low water levels and dry-up events have annually plagued the Little Plover River. This is a result of the cumulative impact of high capacity wells dramatically altering the aquifer and groundwater flow throughout the area. Fortunately, decades of research and monitoring of the watershed by University of Wisconsin-Stevens Point (UWSP) and others gave experts a strong starting point to address the problem.

"The first reported dry-up led to the concern that a real change was happening [in the watershed] because of high capacity wells," said Dan Mahoney, Administrator for the Village of Plover. "Any high capacity well affecting the aquifer that feeds the Little Plover River – which includes the Village of Plover's municipal water system, industrial users, or agriculture – became a big concern. We were aware of this because of the efforts of Professor George Kraft and UWSP's Groundwater Center, who studied this for years and were the first to call attention to the issue."

"Early on, the Village stepped forward and changed the pumping rates at its wells. We also began conversations with the Potato and Vegetable Growers Association (WPVGA) and Del Monte to start affecting some change in water consumption and practices," continued Mahoney.

"But once we saw the issue was the entire watershed, and not just within and immediately adjacent to the Village, we realized the need to expand efforts to include the entire watershed."





“But once we saw the issue was the entire watershed, and not just within and immediately adjacent to the Village, we realized the need to expand efforts to include the entire watershed.”

By the late 2000s, recurring dry-ups and related concerns in multiple waterbodies throughout the Central Sands area began to draw public attention. Long Lake, a trophy bass lake 20 miles south of the Little Plover River, dried up completely in 2006, killing all the fish and diminishing waterfront property values. Meanwhile, market demands drove a rapid expansion of irrigated agriculture in the area and high capacity wells continued to be installed. By 2013, the Little Plover River was named one of the most endangered rivers in the country by the conservation group American Rivers.

That same year, the Wisconsin Department of Natural Resources (DNR) commissioned a study to evaluate the Little Plover River’s flow and groundwater levels on a monthly basis to assist with water management. A state-of-the-art, 3-D groundwater flow model was developed as a tool to precisely simulate the interactions between groundwater withdrawals and streamflow. The Wisconsin Geological and Natural History Survey and the U.S. Geological Survey conducted the three-year study.

Although the study was a big step forward for the watershed, local leaders and stakeholders understood that scientific precision would develop solutions, but not necessarily implement them. To be able to get practices on the ground, a high level of collaboration was needed from government agencies, scientific experts, agriculture, conservation, and the public.

What emerged was the Little Plover River Watershed Enhancement Project, a collaboration between the Village of Plover, the WPVGA, Wisconsin Wetlands Association, and the Wisconsin Wildlife Federation. Montgomery Associates and other consultants provided hydrologic and ecologic fieldwork. Technical support and oversight of the project comes from Portage County Land Conservation Department (LCD), the Wisconsin DNR, and the Wisconsin Department of

“[The landowners] know the land and water [in Portage County] better than anyone, so our work is to learn from them, explore the ways in which their needs and the project goals align, and invite their participation to help implement solutions.”

Agriculture, Trade and Consumer Protection (DATCP).

“What has brought many people together is the mutual understanding that the environment and the economy are tied together. Somehow, we had to find a way to accommodate both those things and make our solutions work for everyone,” notes Mahoney.

A multi-phased project plan was developed for the watershed and put into action in 2017. The plan, which is expected to continue to be carried out over the next five years, addresses both voluntary water conservation needs and on-the-ground conservation work.

Phase 1, which began in 2018, involves developing specific water conservation targets throughout the watershed, conducting channel improvements and forest management, wetland and prairie restoration, filling drainage ditches, restoring 60 acres of farmland at the headwaters to wetlands and prairie, as well as decommissioning a high capacity well. Phase 2 will encourage voluntary on-farm soil and water conservation practices within the watershed.

Following the groundbreaking ceremony last fall, two large, shallow berms were constructed along one of the wetland restoration sites to trap water and increase infiltration with the goal to develop the site into a wetland within a year. Restoring formally irrigated land back to native prairies and wetlands is a very effective way to naturally enhance the volume of water flowing into the Little Plover River.

“There’s approximately 100 acre-feet of water that’s impounded in these two areas,” said Dan



Wetland restoration. Photo: DATCP

O’Connell, Portage County conservation technician. “After such a heavy snowmelt and early spring rains, those berms are already proving to hold back water and infiltrate it, which is promoting the flow into the Little Plover River.”

“In a technical sense, installing a wetland restoration area over reclaimed farmland is a basic conservation practice,” said Drew Zelle, DATCP environmental specialist.

“To determine what best fit

the site, we followed the requirements set forth in the wetland restoration technical standard developed by NRCS. In these kinds of straightforward situations, using conservation practices that require minimum input for maximum gain is a common sense way to make a positive impact in the watershed.”

Collaboration with farmers and landowners to implement a variety of common sense land and water conservation practices is a defining component of the project’s success. Tamas Houlihan, Executive Director of the WPVGA, sees the cooperation from farmers as a testament to the project’s collaboration.

“This [project] is demonstrating how a number of different stakeholders with varied interests can work together to voluntarily find solutions to complex and sometimes difficult situations,” said Houlihan. “This is important because the Little Plover River is an outstanding water resource located within the heart of a major potato and vegetable production area. We have brought multiple farms together to discuss issues, share ideas and work toward finding solutions to problems for the betterment of the industry, as well as the entire state in which we live and work.”

Ensuring farmers and landowners feel heard and have the option to participate in both large and small capacities has been a particularly important way the project has earned the public’s trust.

“We are out getting to know the landowners and learning about their water management and production needs and challenges,” said Tracy Hames, Executive Director of Wisconsin Wetlands Association. “They know the land and water [in Portage County] better than anyone, so our work is to learn from them, explore the ways in which their needs and the project goals align, and invite their participation to help implement solutions.”

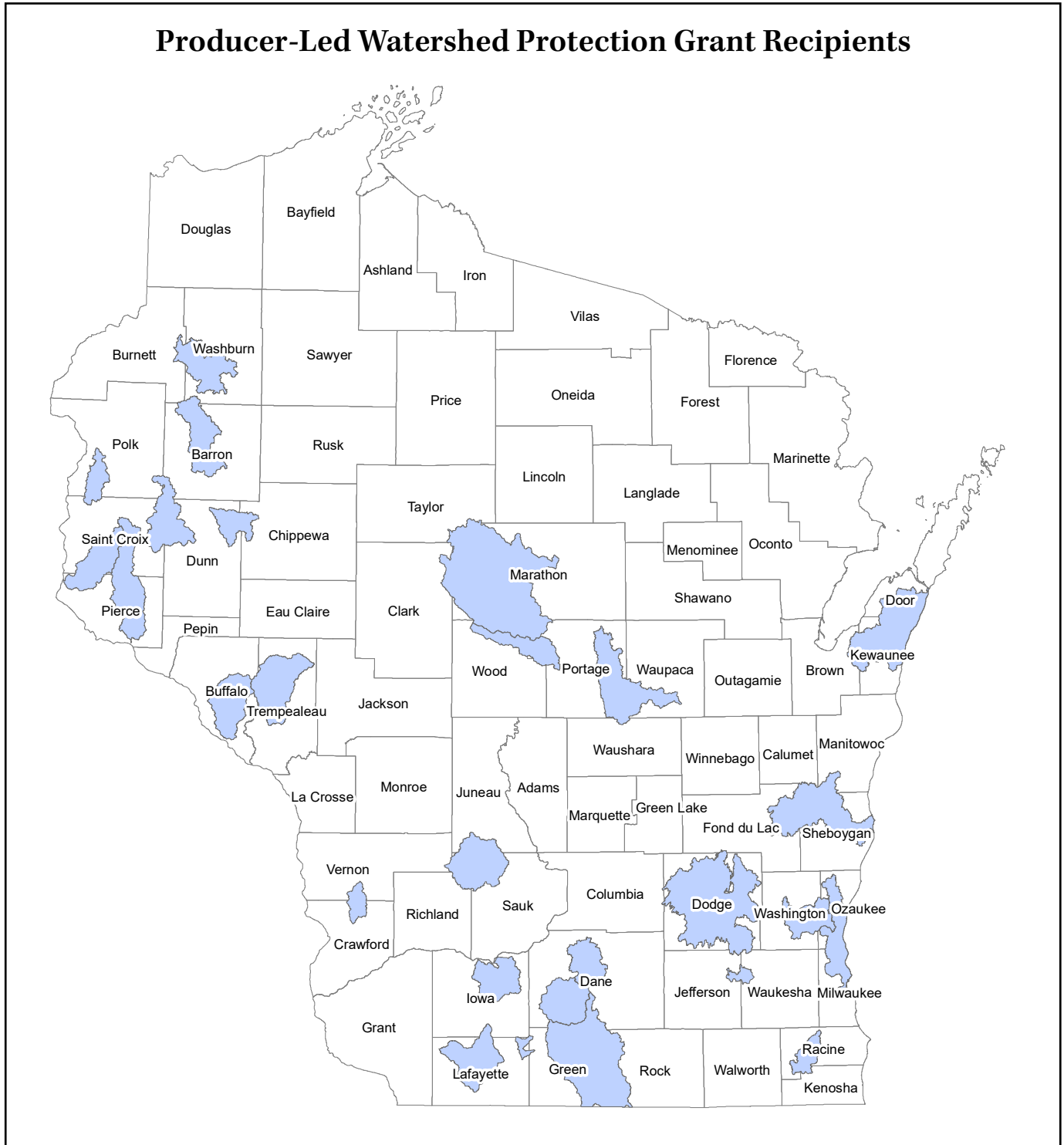
The project’s collaborators are focused on the next round of improvements to continue to restore the Little Plover River to a stable and healthy condition. But for all the organizations involved, the success of rallying a diverse group of stakeholders around the river is already a remarkable achievement and could potentially serve as an example for other locally led initiatives across the state.

“We truly hope there are lessons to be learned here about how groups can be brought together, comprising all these diverse interests, to really make a difference,” said Mahoney.

# Watershed Strategies in Wisconsin

Watershed-based natural resource management is an important way to achieve water quality goals. In Wisconsin, conservation partners use a variety of watershed-based conservation strategies to manage natural resources and to address challenges.

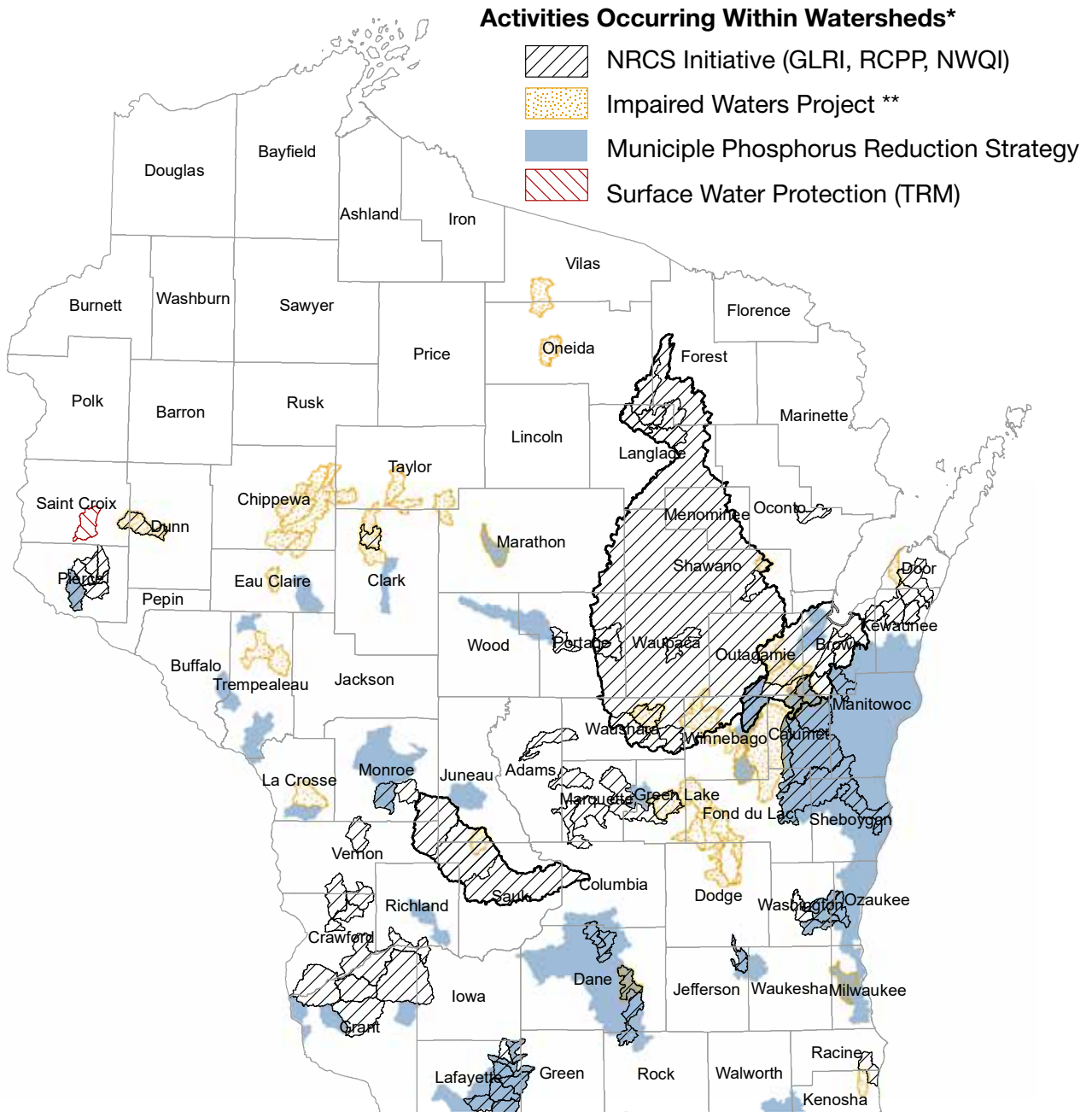
Conservation programs at the local, state and federal level support watershed approaches to managing and improving soil and water resources. State grants through the Producer-Led Watershed Protection Grant program support local initiatives to address conservation needs. Planning efforts,





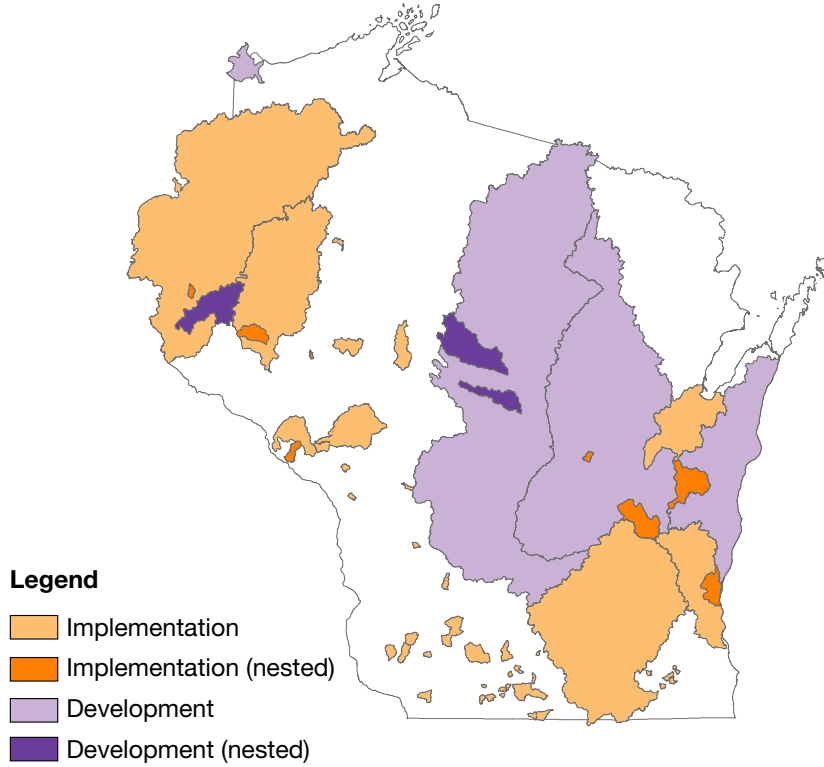
including Wisconsin's nine key element planning program, identify and prioritize resource needs and provide a framework for improving water quality within a geographic watershed. Wisconsin also works with point source permittees interested in achieving phosphorus compliance limits through work within watersheds using multiple municipal compliance options. The federal government targets conservation activities through watershed based initiatives such as the National Water Quality Initiative, the Mississippi River Basin Initiative, and the Resource Conservation Partnership Program.

## Select Activities Occurring Within Watersheds In Wisconsin

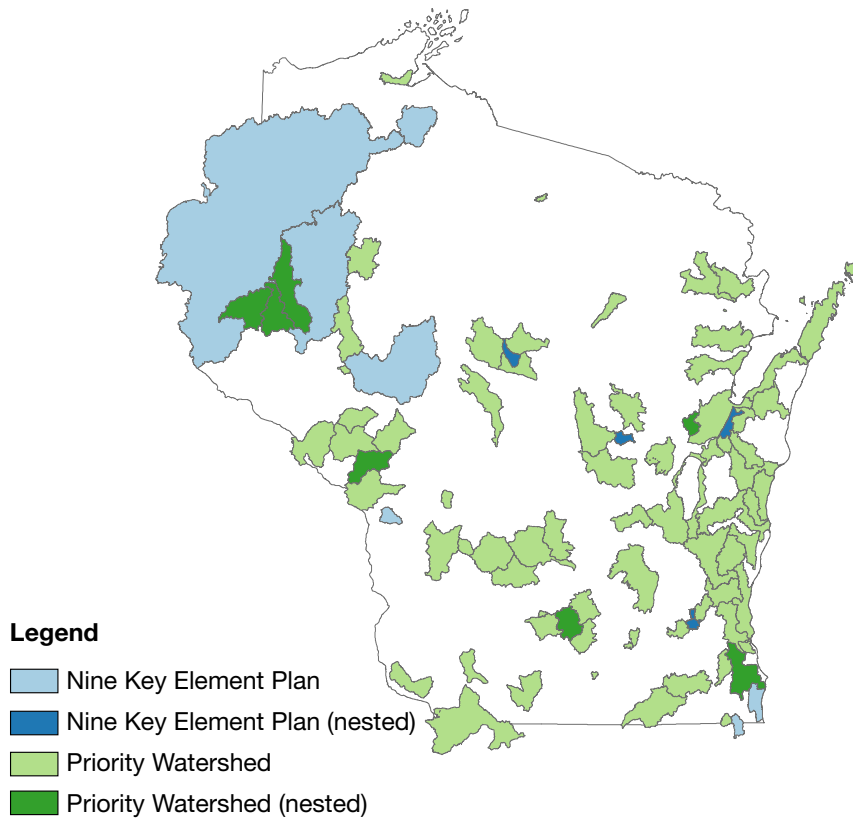


\* Activities may be occurring in only a portion of the watershed  
 \*\* Other than TMDL and 9-key element

## Status of TMDLs Development and Implementaion



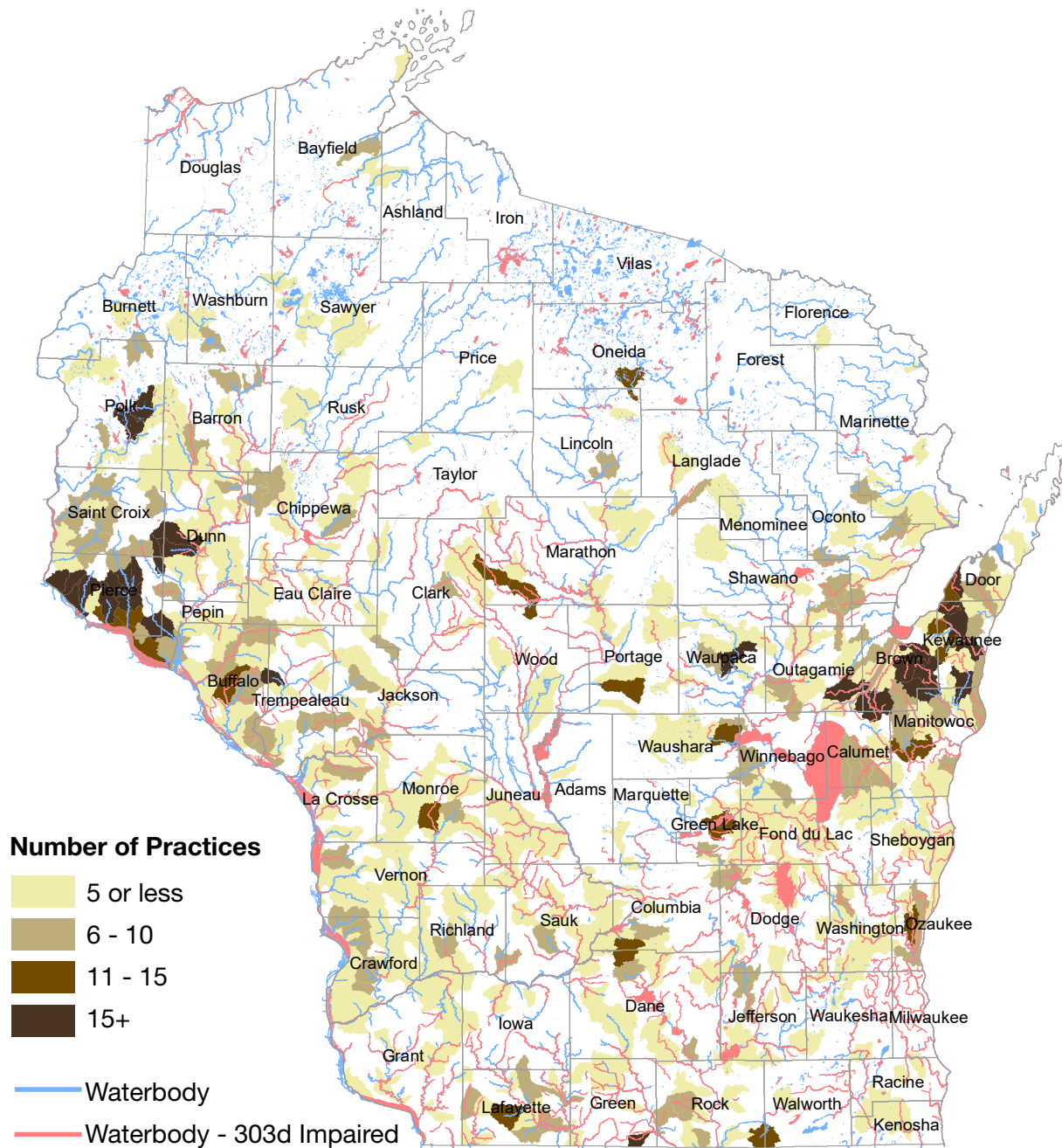
## Status of Nine Key Element and Priority Watersheds



# Conservation Practices Planned Through Natural Resource Conservation Service, 2018

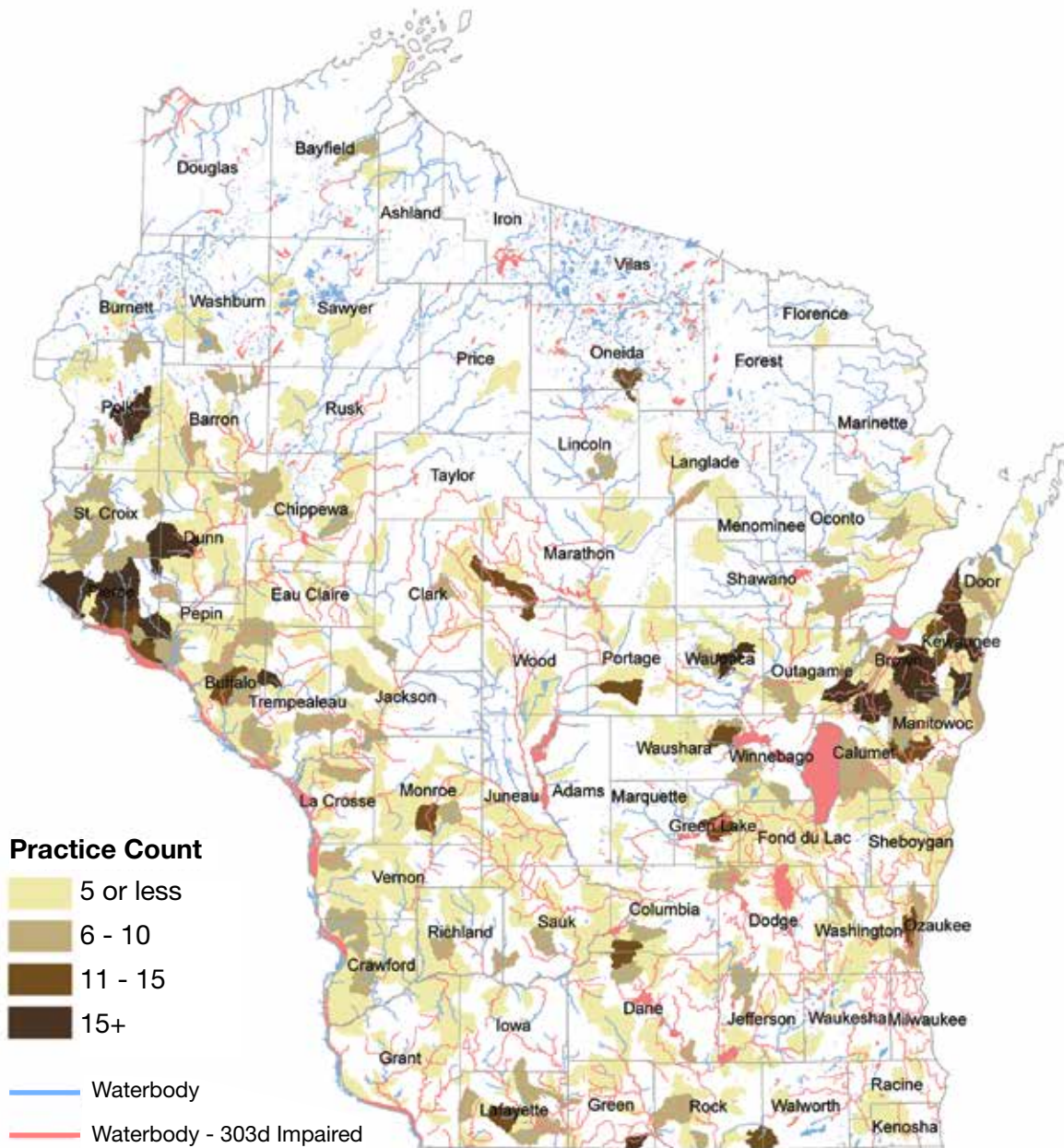
Conservation practices are also designed, implemented and installed in Wisconsin with the assistance of the Natural Resource Conservation Service. These following two maps highlight the watersheds in which these practices are planned to be installed or implemented. In some instances, the practice is considered both a water quality practice and a soil quality practice, and will therefore be represented on each map.

## Water Quality Practices Obligated by NRCS, by Watershed, 2018





# Soil Quality Practices Obligated by NRCS, by Watershed, 2018



*\*Activities may be occurring in only a portion of the watershed*

# Expanding Farmland Preservation – *A Partnership in Conservation and Land Protection*

County conservation departments play an integral role in ensuring the success of Wisconsin’s farmland preservation program. Last year, conservation departments supported local efforts to certify new farmland preservation zoning districts and designate new Agricultural Enterprise Areas (AEAs). The increased number of zoning districts and AEAs enables more owners of farmland to participate in the farmland preservation program (see map on next page).

Many of the newly certified districts and AEAs are located in counties that, prior to 2018, did not have an avenue for landowners to participate in the program. Participation affords significant benefits as the program promotes soil and water conservation and agricultural land preservation, while providing a tax credit incentive to landowners.

However, having farmland preservation in a county brings an additional workload for the conservation department. Despite the potential for added work, the program fits with and complements other county conservation initiatives.

Chase Cummings, County Conservationist with Pepin County Land Conservation Department, was recently involved in getting the Town of Waterville certified for farmland preservation zoning. He explains that although it does involve an increased workload for their staff, “the farmland preservation program opens doors up for broader conversations on land and water resources in the county.” After sending out letters to potential new participants, they received phone calls from landowners who the county may not have been in contact with otherwise. Cummings put it best by explaining how having the farmland preservation program in the county really “creates an opportunity for us to get to know these folks and talk to them about all of the resource issues going (in the county) such as nitrates in the groundwater.” At the end of the day, it is about educating landowners and the public about the importance of conservation programs at the county level.

In all, the farmland preservation program grew by over 400,000 acres in 2018. This means more farms meeting the state’s soil and water conservation standards, and more acres committed to an agricultural future. This number is expected to increase as county land conservation departments continue to leverage the benefits of linking the farmland preservation program with other ongoing conservation efforts.

## Number of Conservation Site Visits in 2018 and Estimated Compliance with Standards

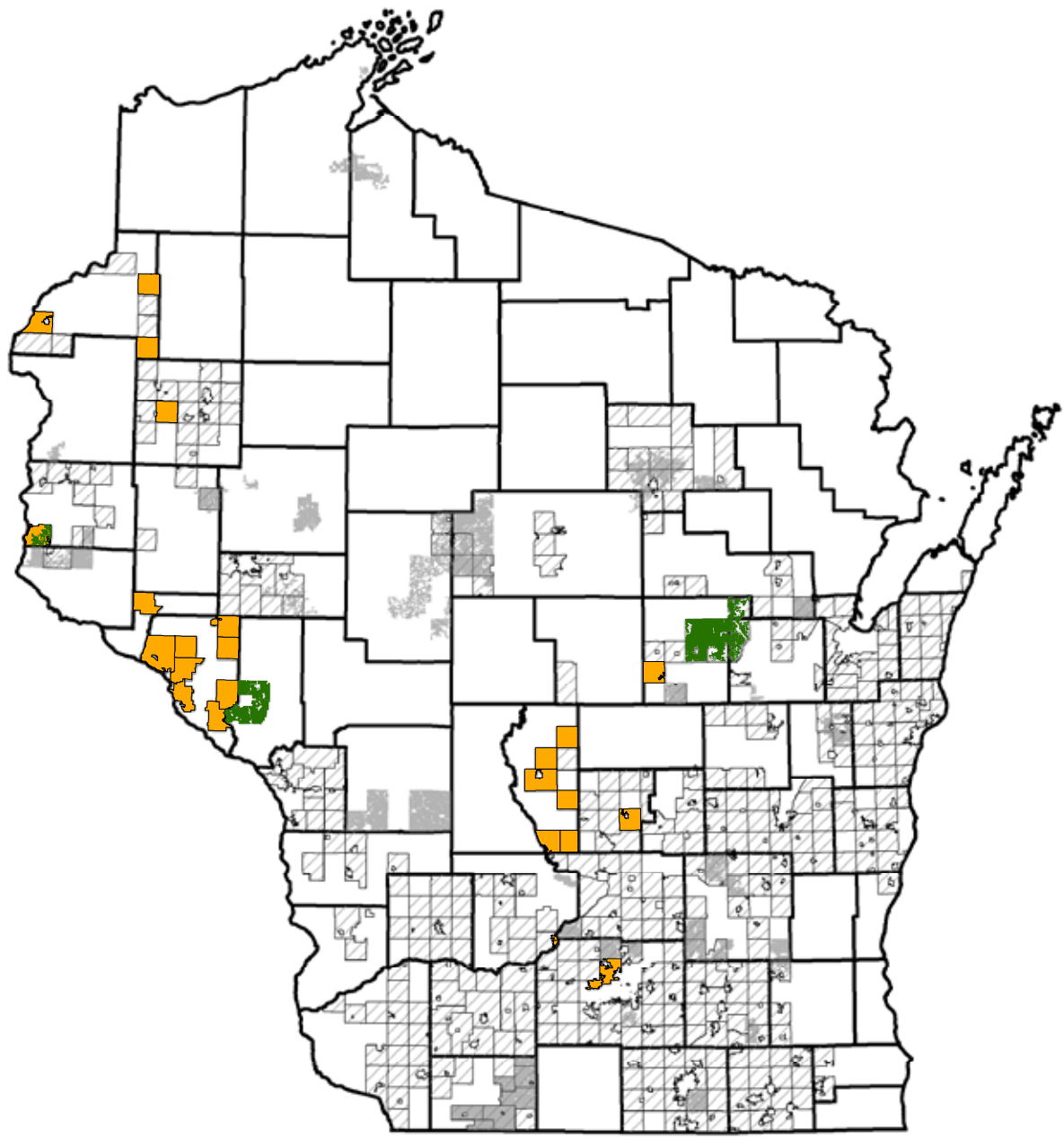
- 2,907** Farmland preservation conservation site visits
- 93%** Farmland preservation participants found to be meeting conservation requirements
- 2,173** Visits to determine compliance with state standards under NR 151
- 86%** Sites determined to be meeting state standards under NR 151
- 368** Site inspections, including forestry site inspections
- 81%** Sites determined to be meeting relevant standards

## Wisconsin’s Farmland Preservation Program Participation\*

- 11,622** Individuals participated in the farmland preservation program and have a certificate of compliance with state conservation standards
- 2,237,890** Acres on which farmland preservation credits were claimed

*\*As reported by the Wisconsin Department of Revenue for tax credit claims paid in 2018.*

## Areas with Farmland Preservation Zoning and Agricultural Enterprise Areas



- Agricultural Enterprise Areas added in 2018
- Jurisdiction with Certified FP Zoning District added in 2018
- Agricultural Enterprise Area
- Jurisdiction with Certified FP Zoning District
- County Boundary



## Storage Stories: Keeping Manure in Its Place

It seems like water quality is on everyone's minds these days, with the Governor declaring 2019 the Year of Clean Drinking Water and legislators on both sides of the aisle setting up groups to examine the issue. And rightfully so – clean water is vital to human, animal and environmental health.

In a state with the second highest number of dairy cattle in the nation, manure management is a big part of water quality. That means it's also a big part of the work that Wisconsin's county land and water conservation departments do every year.

### Burnett County: Putting a roof over their heads

When Steve Dahlstrom switched from dairy cattle to beef, he wanted a grazing operation. He has about 50 beef cows, and including calves, a total herd of about 200 at any one time, feeding them all the way to market weight.

So, his first stop back in 2016 was the Conservation Division of Burnett County's Land Services Department, where he worked with agricultural resources planner Randy Gilbertson to write a grazing plan. That led to the county and the Department of Agriculture, Trade and Consumer Protection providing funding for a well to provide water year-round in the winter feedlot and seasonally in the pastures.

The next challenge Steve brought to the county was that winter feedlot. The earthen lot drained to a ditch that is a dry run flowing north into a wetland and Bashaw Brook, part of the North Fork Clam River watershed.

He had several goals: To prevent further nutrient loading to the ditch, get the cattle out of the mud, and avoid spreading manure in winter. A roof over a concrete floor and a small manure storage structure was the solution.

Randy brought DATCP conservation engineer Pat Schultz into the project to prepare a construction plan for the site layout and manure storage. "We did a concrete crossing in 2017 in anticipation of building," Steve says. "We straightened the ditch, reseeded, regraded and added culverts." They also seeded the area between the barn and the ditch to grasses and legumes, so the clean water off the roof hits grass instead of bare dirt.

In 2018, they built the covered feedlot. They poured concrete with a series of large pens, a bump wall next to the feed lane, and a bedding area. On one end of the barn is a concrete-lined pit for two to three months of manure storage. An 80- x 300-foot roof covers the entire concrete area, including the manure storage. There's room for expansion in the future, with the manure pit in the middle, Steve says.

Besides the conservation benefits, Steve also saw herd health benefits. "Anytime you take cattle off dirt and mud, especially in springtime when



*A roofed winter feedlot project provided a training opportunity for staff from conservation agencies in northwest Wisconsin. Photo: Burnett County Land Services Department*

they're calving, it's going to help. There's no dirt on the teats, and you have very happy calves inside," he says.

An additional benefit is that the project was used as a training site during one of the semi-annual meetings of staff from the conservation agencies in northwestern Wisconsin. "The concept of a roof over a barnyard was a new idea. We worked through how to design a floor to hold the roof, and how to work with an outside consultant," said Shultz. They started in the classroom, and then moved to the site.

"Steve is a very conscientious farmer," Randy notes, and willingly hosted this workshop. He's concerned about soil quality, plants cover crops and uses no-till.

Besides the new concept, lining up funding was probably the biggest challenge for this \$260,000 project, Randy says. The roof and concrete was expensive. DATCP covered \$17,000 and Burnett County paid over \$4,400. NRCS EQIP paid about \$150,000. Despite the expense, Steve says, "It was well worth it."

## Rusk County: A new experience

It's safe to say that most conservation projects don't get done under cover of darkness. But that's how things turned out for Jon Runstrom when he took on a manure storage project working with an Amish veal farmer. Jon is an engineering technician with Rusk County Land and Water Conservation Department.

The farmer raises about 200 veal calves, shipping them every 21 weeks. He had a 45,000-gallon manure pit under the veal barn, enough for three to four months of storage. An outlet pipe extended out one end, about 8 feet off the ground – fine for the horse-drawn spreader he used. But when medical issues prevented him from working with horses anymore, he enlisted the help of a neighbor who also rented his land. The neighbor's more modern equipment was too high to fit under the outlet pipe. It all came to a head in the rainy fall of 2015, when the Amish farmer resorted to simply releasing the manure from the outlet onto the ground. He went to the county office to ask what to do next. The farmer agreed that a manure storage facility that could hold waste for a year was the best option and a final plan for a 235,000-gallon manure storage structure was developed.

The weather held during the three days the contractors spent building up the banks, shaping the slopes and preparing the site for concrete. The next day, the concrete workers started laying rebar. Then the weather changed. A thunderstorm was coming in the next day, threatening to ruin the

slopes. So they decided to pour concrete, starting at 6:30 p.m. and finishing at 11:30. "It was a 6 a.m. to midnight day," Jon remembers, but the job was done and the concrete set before the rain started and just in time for the next 200 calves to move in.



*A manure storage facility. Photo: Rusk County Land and Water Conservation Department*

Ensuring the funding for the project was also a bit of a hurdle, he says. The Amish do not generally accept money from government programs, but getting the

structure permitted required building to state standards. In that case, the farmer agreed to accept cost-sharing for the construction and for the first year of the required nutrient management planning. “Dairyland Labs worked with him on a nutrient management plan. We paid for the first year, and now he pays. Dairyland sends him a checklist every year,” Jon says.

This farmer is unique among the Amish farmers in Rusk County. He is the only one using a manure pit. The others’ operations are too small to warrant that kind of storage structure.

Jon says he enjoyed working on this project, a highlight of which was working with the farmer who treated everyone involved with a high degree of respect. “It was one of the neatest experiences I’ve had,” he concludes.

## Fond du Lac County: A familiar process

Abandoning manure storage pits is a common project for Wisconsin county conservation offices, so it’s worth mentioning one county’s observations about a project on a Waupun farm in spring 2018.

Conservation engineering specialist Ryan Rice worked on this project, probably about the 25th in his career, he estimates. The Fond du Lac County Land and Water Conservation Department averages one manure storage abandonment a year.

“We need to be involved because of the requirements to be sure they’re abandoned according to NRCS standards,” says Fond du Lac County conservationist Paul Tollard. County involvement also documents the location of these pits. “The county ordinance has been around a long time. We feel like we know where most of the pre-ordinance pits are,” Paul adds.

The abandonment process is a matter of emptying the pit, digging holes and looking for contamination under the liner. A half foot to two feet of soil is removed, and the pit backfilled. The soil that had been in contact with manure can be spread as fertilizer. “It sounds simpler than it is,” Ryan says.

The cost of properly abandoning a manure pit can range from \$10,000 to \$30,000, depending on whether it is an earthen or a concrete pit. Sometimes cost-sharing is involved. In this case, EQIP provided cost-sharing.

“This one was initiated because of Farmland Preservation,” Ryan says. That’s one avenue these projects come to county offices. Farmers must comply with conservation standards to get the Farmland Preservation tax credit, and compliant manure storage is one of the standards. Fond du Lac County has a high level of participation in Farmland Preservation, Paul notes.

The aging farm population and trend to larger farms also create a demand for manure storage abandonment. It’s normally the smaller farms where these projects occur. Manure pits generally have a life expectancy of about 30 years, and NR 151 requires manure pits to be closed if they haven’t been used in the past two years, a requirement echoed in Fond du Lac County’s



*Manure store before and after closure. Photo: Fond du Lac County Land and Water Conservation Department*



manure storage ordinance. So, if a farm's been wrapped into a larger operation with manure storage, or even if a farmer has just retired or decided to sell the cows and just crop, the law and the safety of grandchildren often dictates closing storage pits. "If they're selling their cows, we advise them to consider closing the pits," Paul says. "We'd rather not play the 'thou shalt' card."

## Waushara County: Stacking storage

In Wisconsin's Central Sands, proper manure management becomes even more important than some other areas. Where the soil is porous and the aquifer shallow, groundwater contamination is an ever-present concern.

Conservation specialist John Olsen with the Waushara County Land Conservation Department helped a farmer in the Pine/Willow Watershed who came to the office looking to improve storage on a winter feedlot. He grazes his beef cattle in the summer, so waste was not an issue then. But on the winter lot, he stored manure in the same highly permeable spot for the past 50 years. The lot is far from any surface water, John says, but "that's not good on sandy soil," and there was potential for groundwater contamination.

The answer was a manure stacking system with three-month storage capacity, along with a nutrient management plan for the entire farm. In essence, the system is a pit for dry manure. The farmer scrapes manure into a one-foot deep concrete lined pit that is set up to let the liquid drain off into a box where it can be pumped out.

The total cost of the project was about \$29,600, with 70 percent-sharing.



*A manure stacking facility allows liquid from manure to drain off for pumping, with dry manure left in storage. Photo: Waushara County land Conservation Department*

# Nutrient Management: *Building A Bridge To Conservation*

In 2017, only 12% of Trempealeau County’s farmland had nutrient management plans—just over 20,000 acres. By the end of 2018, the county had more than doubled the acres under nutrient management to over 55,000.

“We’re all relatively newer staff at the county, and we wanted to develop stronger relationships with our farmers,” explained Kirstie Heidenreich, the planning and conservation coordinator. “We knew that connecting with farmers to get a plan done would give us a window into knowing the farmers and their farms.”

“[Nutrient Management] helped us build the bridge to get other conservation on the ground.”

To get a jumpstart, the county created a database of the farmers needing nutrient management plans based on Farmland Preservation, livestock siting, cost-sharing, and NR 151 compliance. Then they sent out a combination of mail and email notices to inform those farmers when the county would be holding workshops.

## Nutrient Management Plans Reported in 2018

**8,220** Nutrient management plans  
**3.3 million** acres covered by a plan  
**36.6%** of Wisconsin’s of 9 million cropland

After one season of workshops, Trempealeau County has about 30 farmers doing their own nutrient management plans in SnapPlus, with “a few farmers really using SnapPlus up to its full capabilities,” Heidenreich noted.

## The results?

The farmers understand their own farms better. Many of the farmers took soil samples for the first time. Heidenreich said, “A lot of them realized that they were over-applying fertilizer. Following the [University of Wisconsin A2809] recommendations saved them thousands of dollars per year.” There have been other benefits to the farmers as well. The county receives several complaints when farmers spread manure. The farmers with nutrient management plans are able to show that they are doing the right thing.

## Farmer Developed Plans in Wisconsin in 2018

**1,998** farmers wrote their own plans  
**615,765** acres covered by plans written by farmers  
**24%** of all nutrient management plans are written by farmers  
**\$206,491** awarded in Nutrient Management Farmer Education Grants to support educational programs used to teach farmers to develop their own plans  
**16** nutrient management Farmer Education Grants awarded





# Mapping the Path to Conservation Success in Manitowoc County

In the digital age, having accurate and sophisticated maps has transformed how we make decisions. For farmers and conservationists, mapping can increase understanding of how elevation and land features affect their work. Manitowoc County Soil and Water Conservation Department (SWCD) is on the forefront of developing some of the most advanced county land mapping in Wisconsin, and is providing them online for free to the public.



Data points available with the system. Photo: WI Land + Water

Manitowoc County SWCD’s three-dimensional maps bring a level of detail to the county land that would have been hard to fathom just a decade ago. Spanning approximately 602 square miles, the maps show all the land features across the county – land depressions, streams, trees, rock outcroppings, rooftops, and more – in a level of detail at two data points per square meter. In total, the maps harness over six billion data points, enabling anyone to finely measure the county’s topography from their computers.

The massive dataset was first collected in 2015 by Ayres Associates using a drone equipped with LiDAR technology. LiDAR, which stands for Light Detection and Ranging, measures distances using light in the form of laser pulses. The data was then provided to Manitowoc County SWCD, which worked with Esri to build GIS maps that could be available for the public.

“Having GIS-processed LiDAR data available as a free resource greatly improves the ability of farmers and their advisors to minimize the negative effects of farming on water quality”

For the Soil and Water Conservation Department, the maps help inform much

of what they regularly do, from nutrient management plans and CREP buffers to erosion control structures and culvert locations. For the county conservation staff, the 3D LiDAR technology is now an instrumental tool in how the department evaluates problems and plans projects. Without having to step out into the field, the county is now able to collect preliminary measurement for any distance or area across the county using the 3D LiDAR maps.

“The two most valuable tools on these maps for us are the slope and hillshade functions,” said Riesterer, as he zoomed in on a county road near Manitowoc Rapids. “For instance, I can see this road has a steep embankment from the hill shading. Using the distance tool, I can calculate that the height of the bank is 9.60 feet and the width is 21.64 feet.”

Before the 3D mapping, the county would have had to drive out to that roadside and physically measure the embankment. Now, it can all be done in a matter of minutes from a computer with the



*Bruce Riesterer of Manitowoc County completing analysis using the LiDAR data.  
Photo: WI Land + Water*

same degree of accuracy, ultimately saving the county an incredible amount of time and money.

More recently, Riesterer has focused on synchronizing much of the county's GIS data with their 3D LiDAR mapping. This is especially important in mapping areas in Manitowoc that were at risk for groundwater contamination.

In the karst region of northeastern Wisconsin, Manitowoc County has pockets of land where the depth to bedrock is less than 20 feet. These are highly susceptible to nutrients leaching into the groundwater, potentially resulting in drinking water contamination. In those shallow areas, farmers and landowners must adhere to fertilizer and

manure spreading restrictions during certain periods of the year.

Riesterer and the Manitowoc County SWCD combined their LiDAR data with U.S. Geological Survey data to create an estimated depth-to-bedrock map. The karst and bedrock features map also denotes sinkhole locations, as well as rock outcrops, quarries, and areas where water runoff has a direct conduit to groundwater.

"We've cross-referenced this map with a lot of well records and it's been very accurate," said Riesterer. "When we work with landowners and farmers, we use this map with the SNAP maps to make sure we're giving the public the best information we can. Ultimately, this helps everyone make the most informed decisions for each parcel of land."

Others can also use the publicly available maps provided by Manitowoc County. Steve Hoffman, President and Senior Agronomist at InDepth Agronomy, uses the county's LiDAR data on a regular basis to accurately measure field slopes. This enables his company to better plan crop rotations and soil conservation practices for individual fields.

"We are able to provide spreading hazard maps to our clients that show slope ranges with a much higher degree of accuracy than was previously available through the NRCS Soils Survey," said Hoffman. "As an independent crop consulting company, we work closely with the Manitowoc County SWCD to help our customers improve their environmental footprint. Bruce Riesterer has been very willing to help our company utilize the county's LiDAR data in our own GIS system."

Adapting the LiDAR data is an important step for agriculture to help farmers better understand the unique contour features across their fields and more accurately control for runoff, erosion, and soil loss. When companies like InDepth Agronomy have access to highly detailed data, they are able to enhance their own datasets and ultimately help improve soil health across the county.

"Having GIS-processed LiDAR data available as a free resource greatly improves the ability of farmers and their advisors to minimize the negative effects of farming on water quality," said Hoffman. "LiDAR data is a powerful tool with a myriad of uses that will improve the productivity of industries that deal with land features. The benefits of making this data available as a free resource are countless."

To view Manitowoc County SWCD's 3D LiDAR maps, visit the GIS map page at [www.co.manitowoc.wi.us/departments/soil-and-water-conservation/](http://www.co.manitowoc.wi.us/departments/soil-and-water-conservation/).

# More Extreme Weather Calls for More Extreme Gully Fixes

“It never rains but it pours.”

That old saying has become all too literal in recent years, as record-smashing downpours in Wisconsin have dumped up to a foot of rain in just a few hours. There’s a reason we call these storms gully-washers, as Wisconsin’s county conservationists can tell you.

But there’s a silver lining to this raincloud. With more frequent extreme weather, there’s more motivation to find a cure. These gully-washers are offering landowners and county conservation staff a chance to work together to fix problems and take steps to prevent recurrences.

## Oconto County

Oconto County Land Conservation Department head Ken Dolata remembers getting a call about sediment in a road ditch back in July 2017, after a storm that dumped 7 inches of rain in just a few hours.

“The field was 8-foot corn, and you could see little gullies coming out, but it didn’t look terrible,” he says. He kept going, and the three gullies got bigger and deeper, running from a corner of the field on a hilltop, all the way down to the ditch across 15 to 20 acres. Two of them were 1,000 feet long. One was a little shorter. They were up to eight feet deep – big enough to fit a bus in. And besides filling the ditch, the sediment had also flowed into an adjacent wooded wetland.

The hillside had been in grass previously, but the farmer renting the land had converted it to corn. The landowner wanted it fixed, and was willing to do whatever was necessary. The farmer was a little reluctant, Ken recalls, because he was worried about losing cropland.

That summer, land conservation technician Brady Stodola and DATCP engineering technician Drew Zelle came up with quick fixes to try to stop the erosion from getting any worse. This included using straw bales, and putting in rock dams every 100 feet or so to slow the water. Over the winter, the two designed long-term solutions proposing water and sediment control basins and rock-lined waterways. In 2018, the repair work took place.

Using a contractor who does all the farm’s work, they brought in a bulldozer to get rid of the steep banks in the gullies. Next they buried corrugated tile and 8-inch PVC pipe to carry water to the road ditch, now protected by rocks. A 460-foot long berm halfway up the slope crosses two of the gullies. Water pools behind it, and a stand pipe on the uphill side releases water at a controlled rate. The third, shorter gully was also deeper. They lined it to form a rock chute, with a rock trap at the bottom to dissipate flowing water.

The land above the berm has been planted to grass and cannot be cropped, and the rock chute took about a half-acre of land out of production. But the area directly adjacent to the berm can be cropped, Ken notes. “It was education more than anything,” he said. “He can crop right up to the structures, so he did buy in to the recommended best management practices we proposed. It wasn’t as bad as he thought.”



*A single rainstorm that dropped 7 inches in a few hours scoured this gully and two others out of a slope planted to corn. Photo: Oconto County Land Conservation Department*



All told, it was a \$41,300 project, with the Wisconsin Department of Agriculture, Trade and Consumer Protection paying \$25,000 and the Natural Resources and Conservation Service paying \$16,300.

## Vernon County

Farmers don't write a lot of thank-you notes to government agencies, but that's what Vernon County Conservationist Ben Wojahn found in his mailbox one day last fall after the late summer flooding that hit so much of Wisconsin. The owner of Coon Prairie Farms was grateful for the work done earlier in the season to stop erosion on his land. The installed practices worked exactly as they were supposed to, holding through storms that washed out hillsides elsewhere.

The landowner is a modest man who asked us to use only the name of his farm here, because he wanted the light to shine on the Vernon County Land and Water Conservation Department and its staff. "I can't say enough good things about that office," he said.

He owns about 300 acres in the watershed of the West Fork of the Kickapoo River, but was renting it out until 2016. Despite some steep slopes, the renter monocropped every field, planting up and down with no contours and no strips, county conservation technician Matt Albright says. When the landowner took over the land in 2016, he went in to talk to the county land conservation office. Gullies were setting in. "He didn't know where to start," Matt recalls.

That first year, they put in about 3½ acres of headland buffers and got rid of the cropping on the steep slopes, planting them to permanent cool season grasses instead. In 2017, they added contour buffer strips, and installed one waterway where a gully had formed. In 2018, they added more contour buffer strips and a second waterway to replace a gully. The 15-foot permanent grass buffers are about 90 feet apart, Matt explains. The strips alternate: corn, buffer, soybeans, buffer, corn. For 2019, another waterway is planned.

The owner was looking at both his bottom line and his responsibility to the land. "First and foremost, we have to be good stewards of the land, and if we can make a profit off the land, that should be a natural outcome of caring for the land," he says. "It's a struggle for good stewards to make a profit off the land. The markets don't allow that. In the economics of farming today, it's vital that government provide assistance to protect natural resources for generations to come," he says. "I couldn't have done this without these [conservation] programs and like-minded people." He acknowledges the efforts not only of the Vernon County conservation department, but of DATCP, NRCS, and FSA.

The total cost of the work, including that to be done in 2019, is expected to exceed \$30,000. The programs he mentions will cover 70 percent of that.

"I'm so thankful that Vernon County recognizes the importance of farming that way," he says.



*A field with new headland buffers and contour buffer strips inspired a grateful landowner to pen a thank-you to his county conservation office. Photo: Vernon County Land and Water Conservation Department*

## Buffalo County

In Buffalo County, they have two-story farms with ridges and valleys, says conservation technician Tom Schultz. When those heavy rainfalls come, dry runs can turn into rivers that dump silt into the valleys and leave gullies behind. That was a problem for Dairyland Power Cooperative, headquartered in La Crosse, and led to a unique partnership with the Buffalo County Land Conservation Department and local landowners.

Leif Tolokken, manager of water and waste programs with Dairyland, explains that the co-op landfills fly ash – waste from burning coal at their power plants – in a large valley in the Buffalo City-Mississippi River Watershed. Levees and ditches protect the landfill from water rushing down the hills in storms. Leif says the fear was not that those levees would be breached, but the water was threatening the surrounding bluffs, runways and other structures around the landfill.

The co-op owns some of the land on the ridge above the valley, but much of it is in private hands. Taking care of the problem was a big enough priority for Dairyland to approach Tom's office and offer to pay 100 percent of the cost. Tom recalls the first contact 6 years ago or more, when the co-op thought dams would be the answer. But in the rugged, rocky, wooded terrain, that was going to be very expensive.

Tom's thought was to slow the water down on top of the ridge, with a system that would be effective both with heavy rains and with snowmelt. "One of Tom's ideas was to put water retention ponds on our land and on the private citizens' land around the valley," Leif says. "Taking Tom's advice, we set up a program to do that."

"Neighbors are talking, and that is usually what gets conservation on the land."

Together, they pulled out a large plat map that included topography and identified owners whose land should be part of the project. Dairyland contacted those people, "and all of sudden our phone started ringing," Tom says.

The total drainage area for the project is 3½ sections, about 2,400 acres. They worked with smaller drainage areas within that total – as small as 5 acres, as much as 100 acres – and used small dams to form retention ponds. They installed pipes from 6 to 12 inches in diameter, depending on the size of the drainage and ponding area, to control the runoff.

In 2018, they installed five, and this year, they plan another six dams. There are 40 potential sites for the retention ponds.

"One year in, they're working really well. We started on one side and are working toward the other, so it's almost like a control group. We can tell the difference," Leif says. He credits Tom's intimate knowledge of the area and the people, as a lifelong resident. "He has a wealth of expertise and landowner knowledge. He knows every farm and ditch, he knows the landowners' kids," he says.

Tom notes that a 5-inch rain over five hours last year proved the value of the new structures. "They're beautiful structures with no cost to the landowner," Tom says. And Leif heard a lot of positive feedback from farmers and landowners, who are also co-op members, during a Community Days celebration.

Tom says, "The word's getting out. Neighbors are talking, and that is usually what gets conservation on the land."

# Outreach and Education Activities

County land and water conservation departments offer technical and financial assistance to Wisconsin residents to address conservation needs on their land. This assistance is critical, but it is not usually the first step in meeting conservation goals. Before a conservation practice is installed, conservation employees offer opportunities for education and outreach on the value of conservation and the need for a specific conservation action. The nearly 360 county conservation employees across the state spend much of their time building broad, community-level knowledge of natural resource issues, and fostering an understanding of the benefits of conservation practices. In 2018, county outreach and education efforts reached individuals of all ages and in all parts of the county, rural and urban, with the goal of building a strong foundation for future conservation efforts.

## Brown County

In Brown County, the annual Sunset on the Farm event was held at Brickstead Dairy, which is one of eight Fox Demonstration Farms. The 2018 event expanded its reach to include residents from urban areas in the county. As a result, nearly 500 people from across the county enjoyed a meal and had an opportunity to be on one of 17 wagon tours. The tours highlighted the conservation practices, including cover crops and no-till, that Dan Brick has adopted to improve soil health and water quality on his farm. Youth were given the chance to explore through kids science stations and a petting zoo.



*Sunset on the Farm at Brickstead Dairy. Photo: Brown County*

## Forest County

The Forest County Land Conservation Department uses its established newspaper to promote conservation through a front page feature called “The Conservation Corner.” In 2018, 24 articles were published, reaching an estimated weekly reader base of 7,500 households. Article topics varied and included a feature on county Land and Water Resource Management

### Number of Select County-Led Outreach and Education Activities in 2018

Tours .....	<b>107</b>
Field days .....	<b>386</b>
School-age programs .....	<b>725</b>
Newsletters.....	<b>195</b>
Presentations.....	<b>508</b>
Radio .....	<b>293</b>
Local conservation camp .....	<b>15</b>
Local conservation awards.....	<b>93</b>
Social media posts .....	<b>2454</b>



plan development, invasive species, and the historic effects of wildfires. In addition the department established “Paddle the Forests of Wisconsin” water routes for kayak and canoe enthusiasts and “Drive the Forests of Wisconsin” routes for scenic drives in Forest County. Recognizing the natural aspects of the Forest County, and promoting those features, is critical to fostering an understanding of conservation needs and encouraging participation in conservation programs.

## Shawano County

The Shawano County Land Conservation Department held its annual youth conservation field day at Navarino Nature Center with 250 fifth-grade students participating. Through support provided by Cellcom, which awarded the county a \$1,000 Green Gift, it ensured the kids a chance to get outdoors and participate in environmental education and activities. The hope is that the event inspires future conservation leaders by fostering curiosity about the outdoors and introducing the kids to the variety of conservation career opportunities. Shawano County increased the reach of its field day with the help of Cellcom creating and posting a short video about the event on YouTube.



*Agriculture station during 2018 youth conservation field day.  
Photo: Shawano County*

## Marathon County

In Marathon County, the county supports the Eau Pleine Partnership for Integrated Conservation (EPPIC). Through this partnership, the county helped bring together stakeholders with diverse perspectives on soil and water issues. In 2018, EPPIC organized several events including Farmers Learning from Farmers, a workshop where farmers gathered to learn about conservation practices and local resources, and to hear from local conservation farmers. Along similar lines, EPPIC began hosting peer learning groups, small facilitated meetings that allow farmers the opportunity to learn from one another. Over the summer, EPPIC partnered with the Big Eau Pleine Citizens Organization to host a cook out and pontoon boat ride down the Big Eau Pleine Reservoir to discuss water quality and forge partnerships between farmers and the people who live and recreate on the Big Eau Pleine Reservoir. EPPIC also hosted Common Ground, an evening of conversation and collaboration between stakeholders who have never been around the same table, complete with farm tours, speakers, and an NRCS rainfall simulation. EPPIC ended the year by being awarded a DATCP Producer-Led Watershed Protection Grant to continue the group’s watershed efforts into 2019.



*Farm tour given at Common Ground where EPPIC members showcased different conservation practices. Photo: Marathon County*

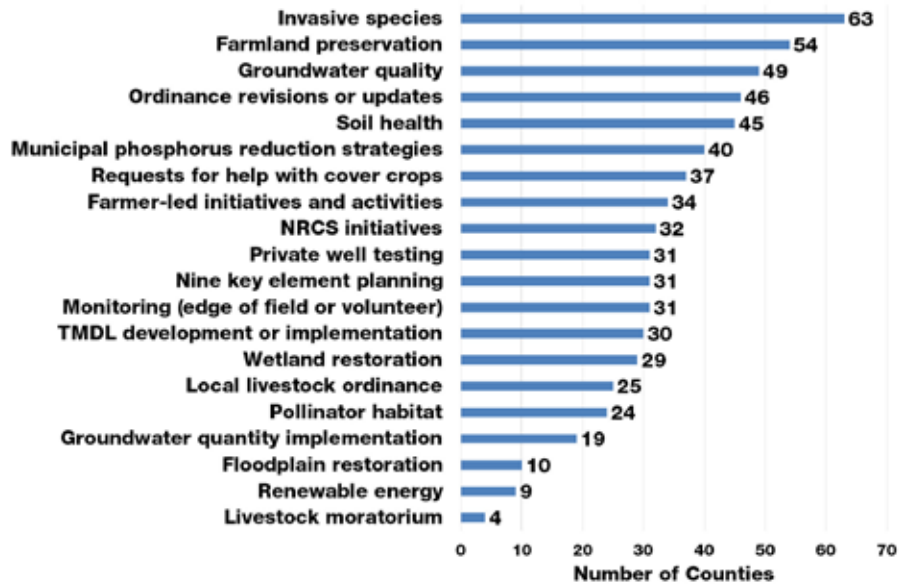


# Wisconsin Conservation Activities in 2018 and 2019

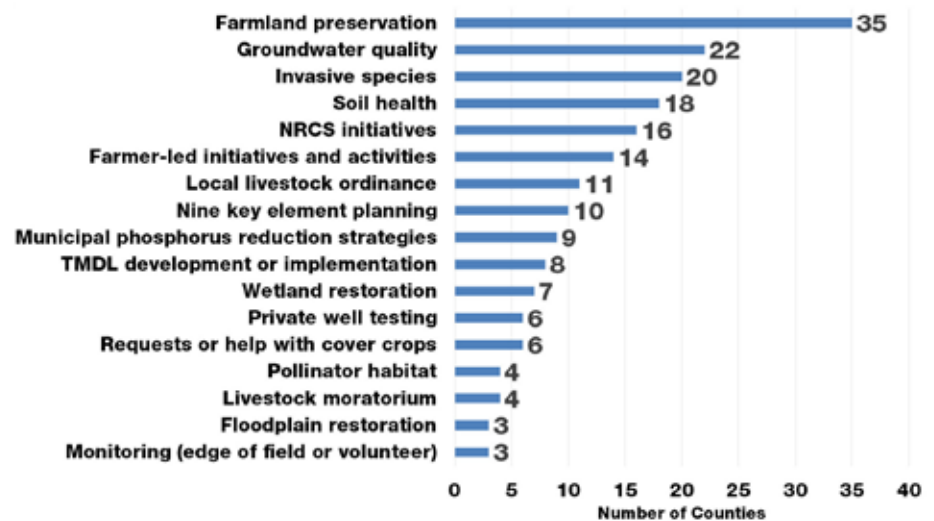
Wisconsin is rich in natural resources. The state has abundant water resources, fertile soils, large acres of forestland, and diverse wildlife. Just as our natural resources are varied, so are the conservation challenges that affect these resources. County conservation departments work closely with county officials, residents, farmers, and other conservation partners to protect and improve local natural resources.

Conservation activities include outreach and education, but also include technical and financial assistance to get conservation practices on the ground where they will provide the most benefit. County conservation departments prioritize their work in various ways, including through the development and of the county land and water resource management plan. Through this planning process, and annual work planning efforts, counties develop strategies to address critical resource issues.

## Conservation Issues County Conservation Departments Dealt With in 2018

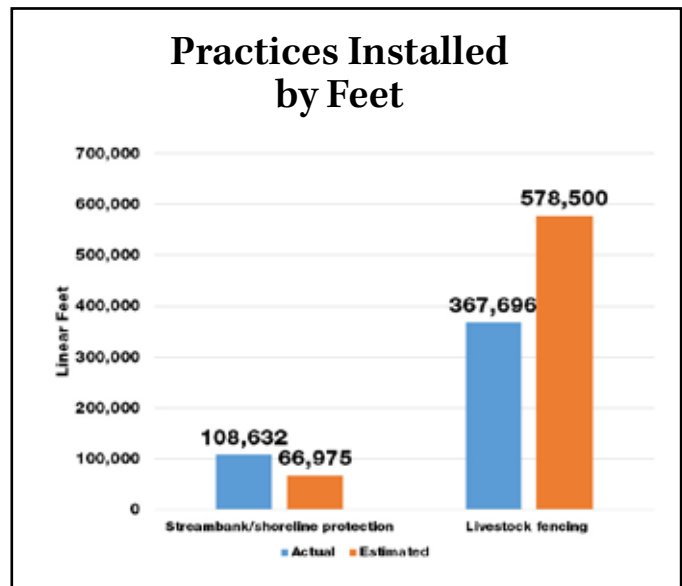
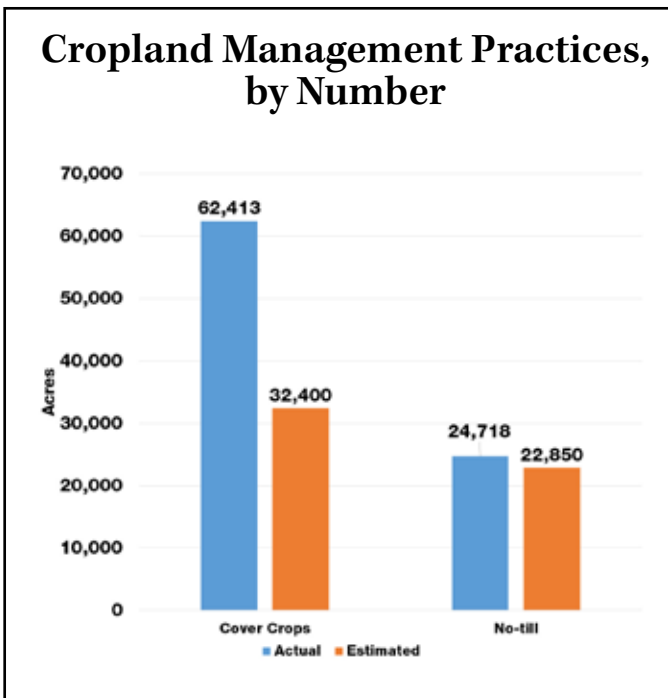
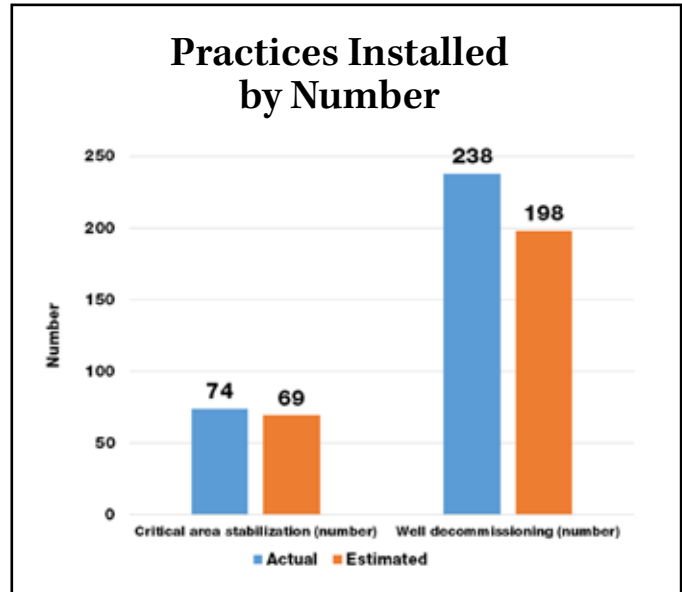
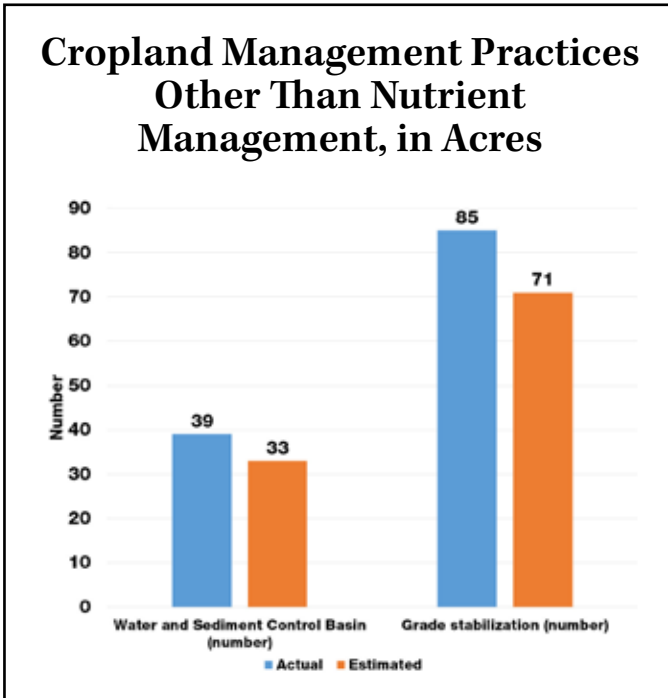


## Top Three Conservation Issues for County Conservation Departments in 2018 (In time spent)

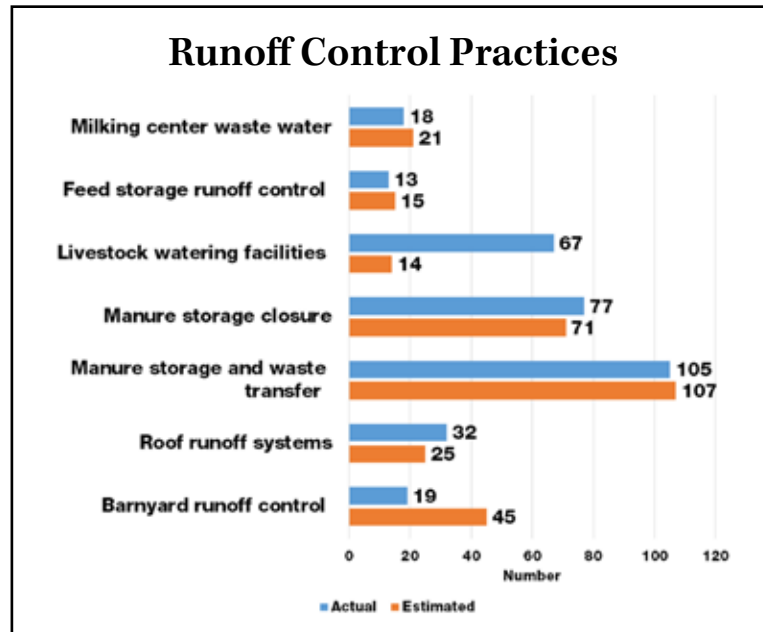


# Conservation Practices Installed in 2018 Compared to Estimates from County Work Plans

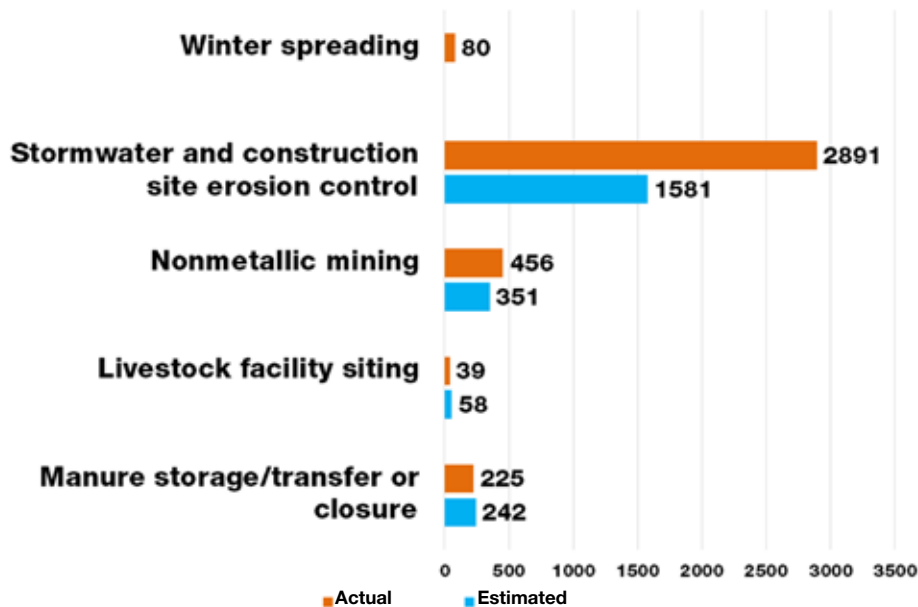
Each year, county conservation departments develop a plan of work for the coming year. In developing these workplans, the counties assess critical conservation challenges and available resources to anticipate and prioritize conservation work.



## Conservation Practices, Continued



### Number of Estimated and Actual Permits Issued by County Conservation Departments, 2018



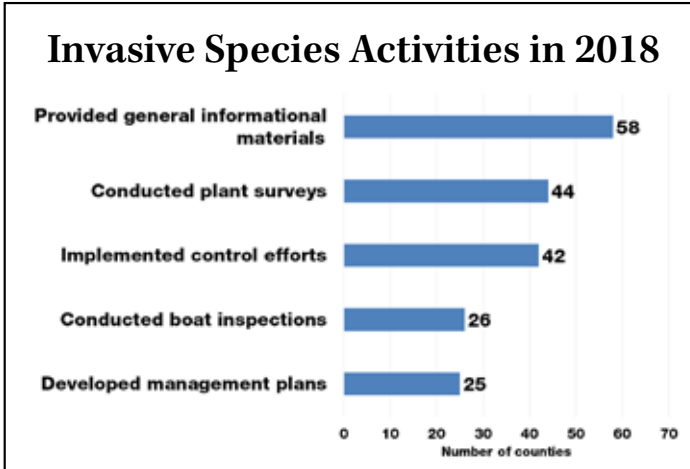
### Permit Actions

- 4,671** Permitted facilities you inspected for compliance
- 114** Permitted facilities issued notices of violation or similar determinations
- 25** Stop work orders issued
- 15** Permitted facilities issued citations or fined for violation
- 12** Permitted facilities referred to corporation counsel for commencement of legal proceedings



## Wildlife, Wetland and Habitat

Conservation activities across the state address a broad range of issues. Over 60 of the state's 72 counties spend time to address terrestrial and aquatic invasive species concerns. Other work activities include habitat management, habitat improvement and wetland restoration projects.



### Wildlife, Wetlands and Habitat Activities in 2018

- 64** Counties handled wildlife damage claims
- 31** counties worked on wetland restoration projects
- 47** counties conducted tree and plant sales
- 5** counties completed pollinator habitat work
- 2** counties worked on fish habitat



Bluff restoration in Bayfield County that required moving the river over 30 feet and installing hundreds of log deflectors. Project completed by Bayfield County in partnership with Northland College, U.S. Fish and Wildlife Service, Town of Lincoln, WI DNR and the Superior Rivers Watershed Association. Photo: Bayfield County



Root wads installed as part of an erosion control project on the Brunsweller River in Ashland County. The project reduces sedimentation concerns and improves aquatic and terrestrial habitat. Funding for the project from WI DNR, NRCS, and DATCP. Photo: Ashland County

## Conservation Activities Planned for 2019

### Cropland and pasture practices

- 2,130** acres of contour strips
- 42** water and sediment control basins
- 37,300** acres of cover crops
- 18,550** acres of no-till
- 60** counties will help review and revise nutrient management plans
- 81** grade stabilization structures
- 41** counties will install over 145 acres of grassed waterways
- 5** counties will install trails, walkways or lanes

### Livestock-related practices

- 91** manure storage facilities
- 82** manure storage closures
- 27,500** feet of livestock fencing (5.2 miles)
- 5,100** feet of clean water diversions
- 24** barnyard runoff control systems
- 13** watering facilities
- 22** roof runoff systems
- 21** feed storage runoff control systems
- 18** milkhouse treatment practices
- 10** roofs
- 7,180** feet of stream crossings
- 20** counties will develop grazing plans
- 2,370** feet of access roads

### Other water quality practices

- 203** well abandonments
- 86,771** feet of shoreline protection (over 16 miles)
- 35.8** acres of critical area stabilization

### Conservation site visits and inspections planned for 2018

- 3,214** farmland preservation conservation site visits
- 1,621** visits to determine compliance with state standards under NR 151
- 404** county animal waste permit inspections
- 109 livestock facility siting permit inspections
- 2,265** stormwater and construction site erosion control permit inspections
- 766** non-metallic mining permit inspections

### Other conservation activities planned for 2018

#### Water quality monitoring

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

#### Invasive Species

- 30** counties conduct invasive species surveys
- 41** counties conduct education
- 31** counties conduct control programs

#### Forestry and Wetlands

- 18** counties engage in forestry-related work
- 30** counties will install wetland restorations



Sunflower cover crops on Yanke's Echo-Y farm in Sauk County.  
Photo: WI Land + Water

# Conservation Practices Installed in 2018 With State and Federal Funding

Table 1: Practices Installed Using Soil and Water Resource Management Funds in 2018, WIDATCP

Conservation Practices		Practices Installed		
		Acres	Feet	Number
<b>Soil Erosion Control</b>	CREP Equivalent	6		
	Animal trails and walkways		2,375	
	Cover and green manure crop	764		
	Critical area stabilization			27
	Diversions		3,291	
	Field windbreaks		8,005	
	Grade stabilization structures			39
	Riparian buffers	35		
	Streambank crossing		2,907	
	Streambank and shoreline protection		23,087	
	Subsurface drains			8
	Underground outlet			12
	Water and sediment control basins			25
	Waterway systems	1,735		
<b>Manure Management</b>	Manure storage closure			31
	Manure storage systems			14
	Access roads		4,989	
	Barnyard runoff control systems			6
	Livestock fencing		79,464	
	Livestock watering facilities			24
	Milking center waste control system			2
	Nutrient management	53,414		
	Residue management	633		
	Roof runoff systems			10
	Roofs			1
	Waste transfer systems			6
	<b>Other Practices</b>	Prescribed grazing; permanent fencing		78,378
Prescribed grazing; establish permanent pasture		190		
Well decommissioning				171
Wetland development or restoration		47		
Feed storage runoff control systems				2



**Table 2: Agricultural Best Management Practices Installed in Calendar Year 2018, WI DNR**

Best Management Practice	Installed Amount	Units
Access roads and cattle crossings	30	Feet
Barnyard runoff control systems	1	Number
Cover and green manure crop	20	Acres
Feed storage leachate	1	Number
Heavy use area protection	0.4	Acres
Livestock fencing	1,152	Feet
Manure storage system closure	2	Number
Manure storage systems	11	Number
Milking center waste control systems	2	Number
Residue management	4,215	Acres
Waste transfer systems	3	Number
Waterway systems	1.68	Acres

**Table 3: Urban Best Management Practices Installed in Calendar Year 2018, WI DNR**

Best Management Practice	Installed Number
Information & education activities	4
Urban detention system	2
Urban infiltration system	2
Urban stormwater/erosion plan	17
Urban stormwater utility formation	4
Other urban planning activities	2
Land acquisition	1
Manure storage systems	11

**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	FY18 Obligation (Dollars)
Cover Crop	1316	10,884,439
Waste storage facility	48	2,992,403
Streambank and shoreline protection	211	2,680,444
Pond sealing or lining, concrete	28	1,978,340
Roofs and covers	22	1,676,341
Heavy use area protection	97	1,378,581
Fence	246	1,244,676
Lighting system improvement	57	1,228,569

**Table 4 Continued**

Waste facility closure	51	1,032,574
High tunnel system	95	873,068
Waste transfer	44	813,650
Prescribed grazing	306	747,584
Sprinkler system	18	685,512
Access road	45	671,748
Grade stabilization structure	81	645,780
Conservation cover	130	599,957
Residue and tillage management, no-till	294	584,356
Grassed waterway	190	527,680
Livestock pipeline	137	484,592
Upland wildlife habitat management	33	442,013
Pumping plant	36	372,941
Forage and biomass planting	114	344,574
Comprehensive nutrient management plan - written	39	314,177
Early successional habitat development/management	97	307,830
Forest stand improvement	66	281,411
Mulching	262	277,386
Forest management plan - written	170	254,531
Subsurface drain	48	243,858
Brush management	165	218,815
Trails and walkways	20	152,815
Underground outlet	43	149,399
Nutrient management	11	145,948
Obstruction removal	130	137,165
Spoil spreading	89	134,076
Waste treatment	3	128,430
Stream crossing	53	125,707
Wetland restoration	25	117,121
Farmstead energy improvement	10	114,681
Lined waterway or outlet	17	110,956
Stream habitat improvement and management	31	104,746



**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>