

2015 Wisconsin Land and Water Conservation

Annual Report



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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

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Acknowledgments

Land and Water Conservation Board Members

Eric Birschbach
Mark E. Cupp, Chair
Caitlin Frederick, DOA
Lynn Harrison
Dale Hood
Robin Leary
Mary Anne Lowndes, DNR
George Mika
John Petty, DATCP
Dave Solin

Advisors to the Land and Water Conservation Board

Francisco Arriaga, UW-CALS
Greg Biba, USDA-FSA
Jimmy Bramblett, USDA-NRCS
Kurt Calkins, WI Land and Water
Ken Genskow, UW-Extension
Jim VandenBrook, WI Land and Water

Agency Contacts

Corinne Billings
Coreen Fallat



Photo: Wisconsin DNR

Introduction

In the conservation field, a lot of time is spent getting the best conservation practices in place to address a specific natural resource issue. This is important: By working with farmers and landowners to put the right practice in the right location, nutrients are kept in place, lakes and rivers stay clean, soil maintains its productivity, and water running out of our faucets at home is protected.

But successful conservation efforts are never just about getting the right conservation practice in the right place. Success requires balancing competing demands for funding and staff time, collaboration between agencies with diverse missions, accounting for farmers' need to make a profit, and dealing with plain old human nature.

Amid these challenges, conservation professionals at the county, state and federal levels continue to work together to get the best results for Wisconsin. The 2015 Wisconsin Land and Water Conservation Annual Report showcases how conservation partners successfully navigate some of these challenges.

- It highlights how multiple conservation programs in Wisconsin work together to result in a sum that's greater than the parts.

- It examines the importance of planning for conservation, not just to meet state or federal requirements, but to make the best use of funding and focus efforts where it helps the most.
- It explores how some counties are using computer modeling and linking databases for greater efficiency and savings.
- It looks at the value of technical expertise to help a new farmer get started and meet county conservation goals.
- It shares county commitment to project success and the importance of engaging a new partnership.

These stories offer snapshots of the conservation work that goes on in all 72 Wisconsin counties year in and year out. While they are local snapshots, they show how local priorities reflect broader state conservation needs.

Wisconsin is fortunate to have committed conservation professionals dedicated to working with landowners.

The 2015 Wisconsin Land and Water Conservation Annual Report also offers information about the status of conservation funding in Wisconsin, progress toward nutrient management planning, and innovative tools to help capture the impact of conservation activities.

This report allows reflection on work done in 2015, and looks at the work underway in 2016. Wisconsin is fortunate to have committed conservation professionals dedicated to working with landowners and with each other to get the job done.

Conservation Funding in Wisconsin in 2015

State funding for local conservation staff totaled approximately

\$9,093,000

Conservation staff develops, administers and implements local conservation programs.

Funding for conservation practices, and related training and tools came from many sources.

\$9,751,000

in state funding from DNR and DATCP (\$4,042,000 and \$5,709,000, respectively) provided cost-sharing for conservation practices

\$700,000

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

\$2,200,000

in local funding, including county levy, for conservation*

\$1,400,000

in grants from other, primarily non-governmental organizations for conservation activities*

\$51 million

from federal conservation programs through USDA-NRCS for conservation activities, with the majority of funding coming through the Environmental Quality Incentives Program (\$22.6 million) and the Conservation Stewardship Program (\$24.1 million)

**As reported by counties in April 2016*



Sand mound in field

Farmland Preservation Benefits Fish, Too

If the fish in School Section Lake could talk, they would say thanks to Gary Schoen. Gary grew up on his family’s farm in Waupaca County right next to the lake and he has always been concerned with the quality of the water. School Section Lake is a 39-acre lake noted for its pan fish population. When he was a kid, he recalls how his family would farm right up to the banks. Today, he recognizes that how the land is farmed and how nutrients are handled can directly impact water quality.

This balance between farming and resource conservation is a key aspect of the state’s Farmland Preservation Program. In 2015, Waupaca County adopted its first farmland preservation zoning ordinance. The ordinance is now effective in eight towns and covers

nearly 130,000 acres. In order to participate in the farmland preservation program, landowners need to meet state standards for soil and water conservation.

As a supervisor for the Town of Union, Gary was integral in determining whether the town should adopt the county’s farmland preservation zoning ordinance. The decision to adopt the zoning ordinance highlighted the benefits of the program through the added income to farmers from the farmland preservation tax credit, and overall environmental protections that participation in the program can bring to the community.

Shortly after the county’s farmland preservation ordinance was passed, the land conservation office sent out a mailing to all landowners of 20 acres or more of farmland in the eight towns under the ordinance. The mailing encouraged interested landowners to contact the county to learn more about the conservation requirements and to schedule a farm visit to establish their compliance with these requirements. Landowners began calling the county conservation office late last year to request a visit to determine eligibility for the program.

One by one, Stefan Stults, nutrient management specialist, began visiting farms and walking fields to check whether landowners meet standards. Before Stefan issues a certificate of compliance to a landowner, he walks every field. These walks have been valuable in identifying gullies and locating areas of field erosion. “Without these field walks, these sources of soil

Farmland Preservation Program Participation

(as reported by DOR for tax credit claims paid in 2015)

13,543

individuals claimed the farmland preservation tax credit

2,542,988

acres were claimed under the farmland preservation program

3



Installation of water and sediment control basin

erosion would not have been found. Without farmland preservation, we would not be taking these walks,” comments Brian Haase, County Conservationist in Waupaca County.

Stefan’s visit to Gary’s farm illustrates the benefit that compliance checks for farmland preservation can have for water quality. During the field walk, Stefan noticed a significant mound of sand in the middle of one of Gary’s fields. He realized that there was a serious erosion problem occurring. This problem was not just on Gary’s farm, but spanned fields owned by three neighboring landowners.

Stefan worked closely with Gary to design and install a water and sediment control basin on a field slightly north of the lake. These structures are a combination of a ridge and a channel that serve to temporarily detain water and trap sediment. When there is a rain event, water pools next to the embankment and then slowly drains through an outlet. The practice is designed to hold water for no more than 24 hours.

These structures are useful for the irregular terrain

Acres of Nutrient Management Plans Reported by Program from 2005 – 2015 (in thousands of acres)

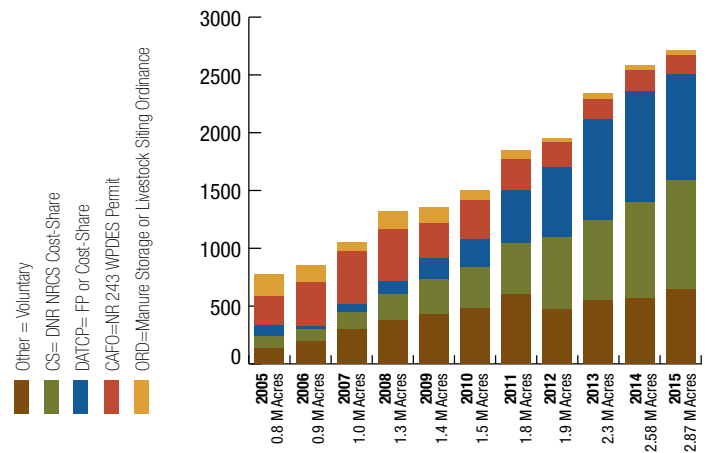


Figure 1: Landowner participation in the farmland preservation program has increased the number of acres in the state covered by a nutrient management plan since 2009.

common in the area and compatible with growing corn which can withstand a pool of water for 24 hours. Farmers can continue to farm these fields and the fields are not as likely to be impacted by tillage. In addition, these structures are able to detain 90 percent of peak flow during a runoff event, which translates to an equivalent savings in the loss of sediment from the field. The water and sediment control basin on Gary’s field was designed to be part of a 4-stage process that will ultimately reduce erosion and improve water quality in School Section Lake. Two of Gary’s neighbors watched the installation and have agreed to similar practices on their fields.

According to Haase, in addressing field erosion, the key for them was really farmland preservation. Without the compliance checks associated with farmland preservation participation, the county would never know about such erosion issues until they became a huge problem. They are able to take steps in advance, working with landowners who have an interest in being part of the program and protecting the small lakes that landowners in the county value so much.

Photos: Waupaca County Land and Water Conservation Department



9 Keys To Restoring and Protecting Wisconsin's Waters

Success in achieving water quality improvements within a watershed takes more than just hard work. It takes an understanding of the area's natural resources and landscape. It requires knowledge of the people and the management of the land in that watershed. And it requires the development of a workable strategy capable of establishing a framework to address the factors that contribute to the water quality problem.

For Outagamie County, development of a “[9 key element plan](#)” provided a guide for efforts to address natural resource needs in the Plum and Kankapot creek watersheds, which are subwatersheds of the Lower Fox River watershed. The plan, which was approved by the Wisconsin Department of Natural Resources and the U.S. Environmental Protection Agency (U.S. EPA) in 2015, includes 9 elements identified by the U.S. EPA to effectively address water quality problems. These elements include assessments of the contributing causes and

sources of non point source pollution, the involvement of key stakeholders, and the prioritization of restoration and protection strategies to address identified water quality problems.

It is this ability to prioritize that can really help when addressing non point pollution. “Understanding the problem was only a part of the equation in Outagamie County. The plan helped to prioritize conservation efforts in the watersheds,” explained Greg Baneck, County Conservationist. Once the 9 key element plan was completed, it now serves as the implementation plan for reduction of sources of non point pollution in the Plum and Kankapot creeks. This implementation plan is a part of the Lower Fox River Total Maximum Daily Load (TMDL), which describes the amount of a pollutant a water body can receive and still meet water quality standards.

“One of the challenges in the county was to explain how another planning effort would benefit the water resources. But now that we have this plan, we have been able to get state and federal grant funding to support these efforts,” explained Baneck. “With the success in the Plum and Kankapot creek watersheds, Outagamie County has now completed plans for Upper Duck Creek and the Upper East River, with additional inventories underway in other watersheds.”

Outagamie County is not the only place that is recognizing the value of a 9 key element plan. The number of Wisconsin watersheds with approved 9 key element plans has increased over the last 3 years (see Figure 2). The map on page 10 shows the locations of the 33 approved plans in the state in 2015. Although some of those plans will be expiring soon, more plans are already under development, including

in the Eau Claire River, Lower Peshtigo River, Rock River, Lac Courte Oreilles, Wind Point, Fenwood Creek and Jackson Creek watersheds. Overall, there is an increase in the number of approved 9 key element plans, which is a great trend for addressing non point source pollution to improve water quality within Wisconsin.

In Wisconsin, [9 key element plans](#) align well with county land and water resource management plans. They also meet eligibility requirements for federal and state grants that use Clean Water Act Section 319 funds and are being used to create implementation plans for water bodies with approved [total maximum daily loads](#). For help getting started on a 9 key element plan, contact [Andrew Craig](#), DNR's Statewide Non point Source Planning Coordinator.

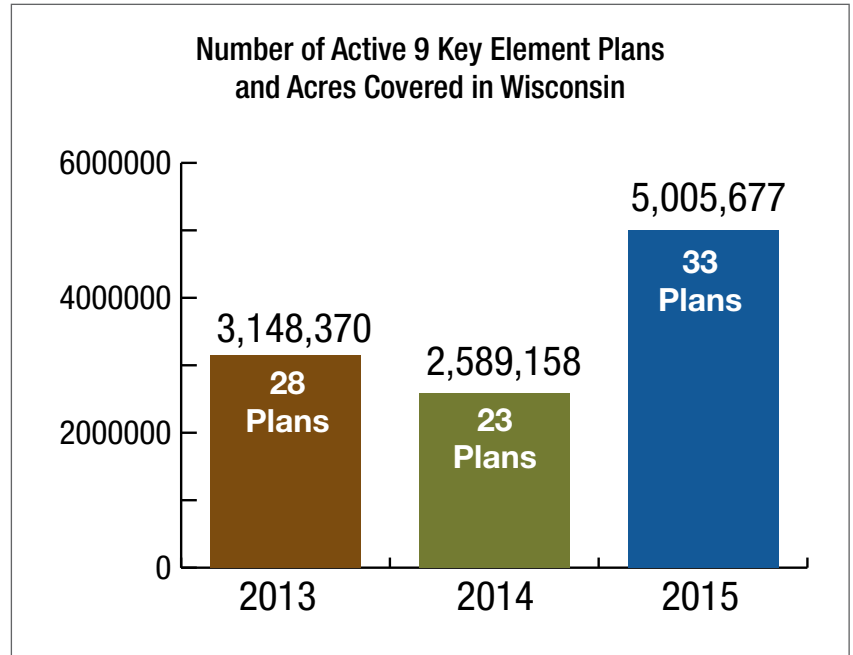
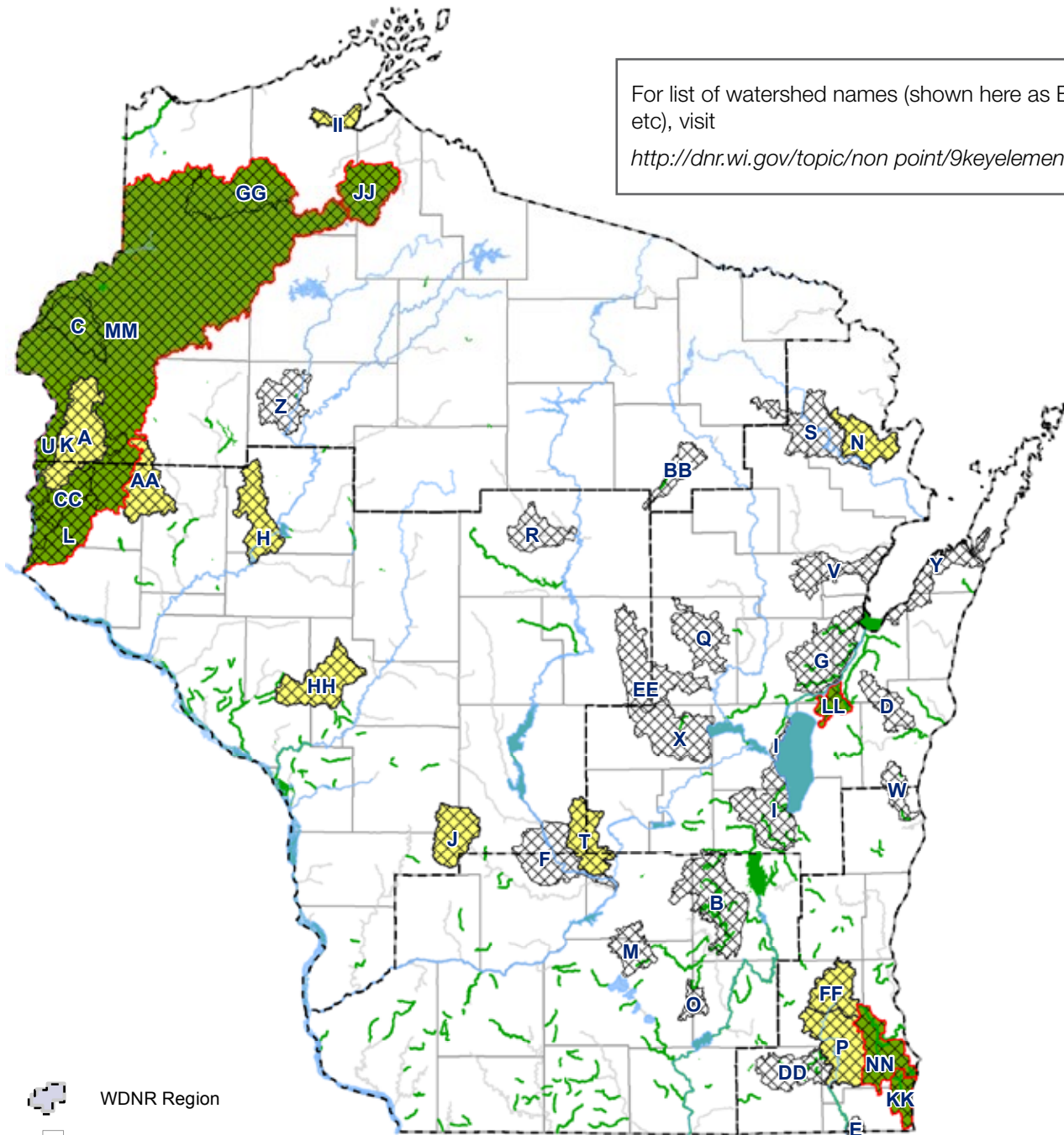








Figure 2



Active 9 Key Element Plans in 2015



For list of watershed names (shown here as EE, HH, etc), visit
http://dnr.wi.gov/topic/non_point/9keyelementplans.html

-  WDNR Region
-  County Boundary
-  Hydrologic Network
-  Priority Watershed 9 Key Element Plan Area
-  Priority Watershed 9 Key Element Plan Area Expiring Soon
-  Other EPA-Approved 9 Key Element Watershed Plan Areas

Note:
 Project areas represent the
 HUC-8, HUC-10 or HUC-12
 equivalents of previous WDNR
 Priority Watersheds.



Developed by WDNR
 Bureau of Water Quality
 June 2015

Notice of Intent/Notice of Discharge Cost-Share Grants

The Notice of Intent/Notice of Discharge Grant Program (NOI/NOD) provides cost-share funding to counties to directly address a discharge of manure, process wastewater, or both, to waters of the state. Process wastewater includes such things as milkhouse waste and leachate from a feed storage area. The grant program is administered jointly by DNR and DATCP and both agencies have funding available annually to resolve identified discharges. For calendar year 2015, applications for 13 new projects were received, and 2 projects from 2014 requested additional funding in 2015. The 2 projects originally awarded funding in 2014 and 10 of the 13 new projects were awarded funding in 2015.

County	Award	Funding Agency
Clark	\$150,000	DNR
Columbia*	\$150,000	DNR
Columbia	\$110,000	DNR
Eau Claire	\$49,700	DATCP
Grant	\$7,350	DATCP
Green Lake	\$150,000	DNR
La Crosse	\$34,400	DATCP
Monroe	\$170,000	DNR
Monroe	\$69,300	DATCP
Richland	\$33,600	DNR
Richland	0	Not funded
Trempealeau	0	Not funded
Vernon	\$79,000	DNR
Waupaca	0	Not funded
Wood*	\$25,000	DATCP
DNR sub-total	\$842,600	
DATCP sub-total	\$185,750	
Total	\$1,028,350	

*Initial award made in 2014. Additional funding awarded in 2015.

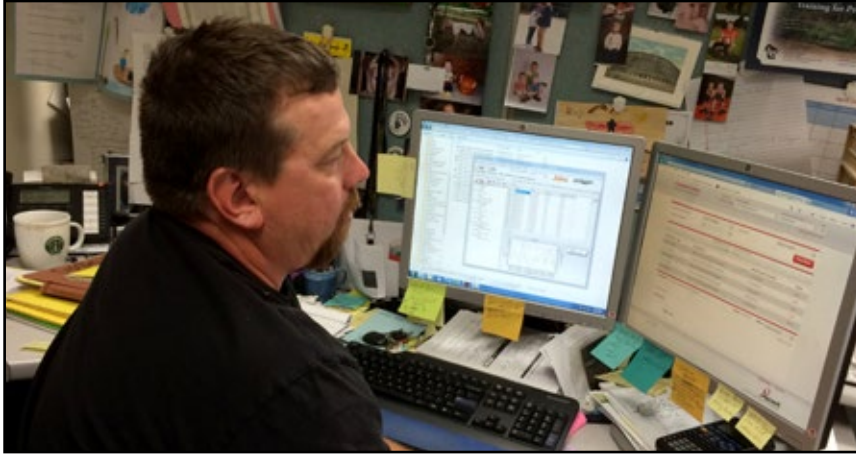


Unconfined manure stack located 50 feet from water in Monroe County



Completed manure storage structure in Monroe County partially funded with a cost-share grant

Photos: Monroe County Land Conservation Department



Water resource specialist Chris Arnold works with Columbia County's web-based database that tracks conservation programs by tying them to the county's land records

Computer Conservation: Technology Saves Time and Money, Along With Land and Water

Kurt Calkins and Terry Loeffelholz didn't start their conservation careers expecting to be "techies," but these days, they find themselves using high-tech tools for much of their work.

Calkins directs the Columbia County Land and Water Conservation Department, and Loeffelholz heads the Lafayette County Land Conservation/Planning and Zoning Department. Calkins's department is using a web-based land records system to track conservation programs in Columbia County, and Loeffelholz drew on computer modeling to prioritize farms for conservation work in the county's new 10-year Land and Water Resource Management Plan.

Columbia County

"The things we're tasked with doing, the projects and programs, are all tied to land

records," Calkins said. The problem was that their department wasn't tied to the county's land records – not unless someone rummaged through the records in the register of deeds office to find out who owned what fields and farms.

"As we worked with landowners in the state's farmland preservation program we realized very quickly that we had a perfect storm," Calkins said. "We had a landowner-based tax credit program that was tied to conservation requirements. The burden of meeting conservation standards was on the landowner, but the trend in the county was towards rented land. We were at an obvious crossroad. We needed to begin to integrate conservation tracking with land records."

For the past 10-15 years, the county had been working to modernize its land records and hired a consultant to build a computerized land records system. The same company then built the web-based software to help the Land and Water Conservation Department tie its records to the land records system.

"We were initially tracking landowner eligibility for the farmland preservation program in Access, which was a starting point, but not good for multiple users, and not connected directly to land ownership," Calkins said. The new system now ties land ownership records, tax parcel information, and information about conservation practices using the records themselves and the geographic information system (GIS) layers. His office can plug its information about conservation status into the system, and get a printout of a certificate of compliance needed by landowners in farmland preservation. Another benefit is that the system can track both owners and operators. And when land changes hands, records are automatically updated and his department receives a notification of the change.

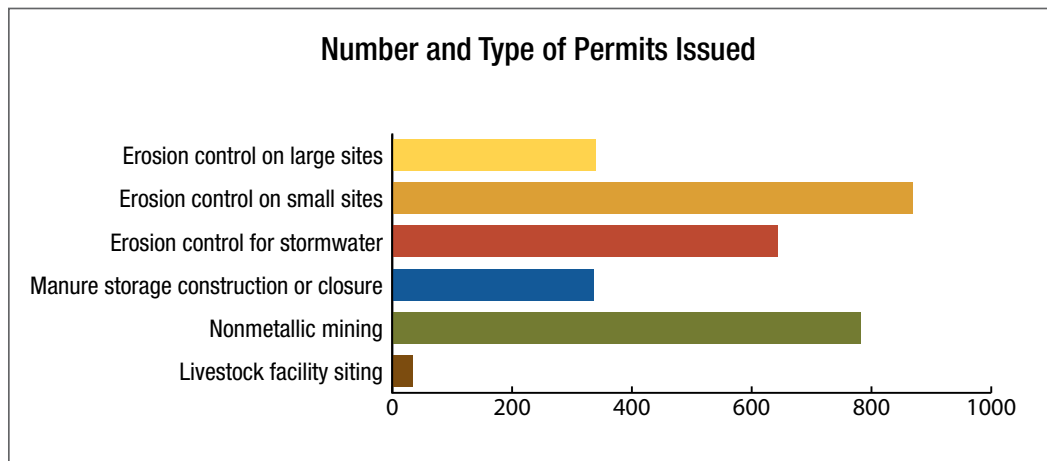


Figure 3: Permits issued by county conservation staff in Wisconsin in 2015 as reported to DATCP.

“If I get a phone call from a farmer, within a minute, I can have an aerial view of the land in front of me,” he said. “It ties us into a system we don’t have to maintain manually.”

With the new farmland preservation database up and running, Columbia County is now working to tie nutrient management planning and animal waste storage facility permits to the land records system. This way, when land is sold or transferred, the system automatically notifies his staff. This enables them to contact the new owners to talk about conservation needs on the land. Looking down the road, other best management practices and other nutrient reduction strategies could be tied to the land records, too.

“We designed the system to hit points in the process that we already have to do – for example, certifying conservation compliance. Now we do this within the system instead of ending up with a stack of paper certificates,” Calkins said.

Further efficiencies are being built into the system to allow both certified landowners and nutrient management planners to access the system remotely. This access will allow them to submit checklists required to show that county and state nutrient management requirements are met. “The agronomists we have spoken with are very excited about being able to use the technology. And we are excited because we won’t have to manually enter stuff from a hard copy. Win-win for all,” Calkins added.

Fees collected by the register of deeds office paid for the

land records modernization portion of the system, and the county paid for the land and water conservation portion hoping other counties will buy the software. “Other counties have now begun using our system, and we feel it could be a model for the state agencies to consider using to help better track the work we do,” Calkins explains. “We are happy to discuss the framework of this system at any time and share how we feel it will get more conservation on the ground,

be more efficient for staff and help landowners and operators better meet their conservation expectations.”

Lafayette County

When it came time to update Lafayette County’s Land and Water Resource Management Plan, Terry Loeffelholz faced a problem. To create a workable plan, he needed to know where to focus the always-limited dollars and staff time. But in this county built of hills and valleys, most of it cropland, all the survey data used to map cropland soil erosion had been lost and his office is no longer able to conduct the survey. Enter EVAAL.

EVAAL – Erosion Vulnerability Assessment for Agricultural Lands – was developed by the Wisconsin Department of Natural Resources. It is a computer model that uses 10 steps to evaluate cropland vulnerability to sheet, rill and gully erosion based on topography, soils, rainfall and land cover. It doesn’t tell how much erosion is occurring, only the location of erosion hot spots likely to contribute the most sediment and nutrients to surface water.

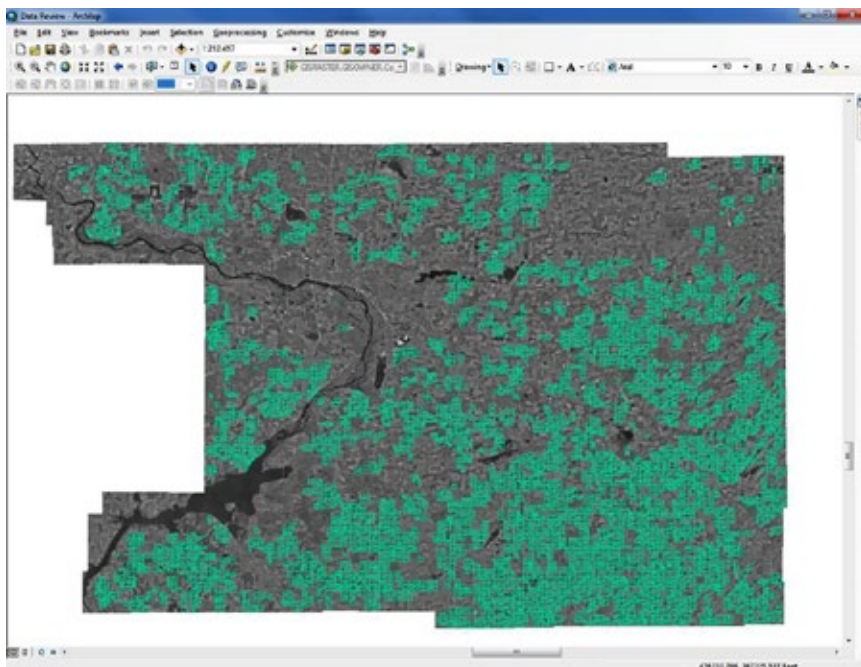
Loeffelholz worked with the Southwestern Wisconsin Regional Planning Commission to write the county’s land and water resource management plan. Troy Maggied, executive director of that agency, explained that his staff used a process of deduction to narrow 29,000 parcels of land to 800 priority farms. First, they identified all the county’s impaired waters, sub-watersheds,

DNR-managed land, parcels with a soil erosion index, and locations of existing best management practices. Then they removed all the sub-watersheds without impaired or proposed impaired waters. Next, they removed parcels that already had best management practices and DNR land.

Then they applied EVAAL to the remaining lands. Those with low erosion potential according to EVAAL were removed. Finally, they aggregated the remaining parcels by farm owner and exported all the data into an Excel spreadsheet which identifies those areas most vulnerable to soil erosion. The conservation staff in Lafayette County can now use that spreadsheet to help prioritize work with landowners.

“It’s much more manageable,” Maggied said. “EVAAL let us look at the land on a parcel-by-parcel basis, to see where it was naturally predisposed to erosion.”

The end result didn’t hold any big surprises for Loeffelholz. “But, it confirmed the areas we thought needed to be worked on. We already had a good idea,” he said. While EVAAL does not tell him what nutrients are being lost, it will help reduce erosion. “Farmers still need to see concrete evidence, rather than a computer program, but the information provided by the model can



Columbia County’s integration of land records, mapping and conservation information

help us target our work with the farmers,” Loeffelholz concluded.

Use of the model also carries 2 other benefits: it helps meet the criteria for 9 key element planning that the United States Environmental Protection Agency requires, and will save staff time in his office.

Landowner Compliance with Agricultural Performance Standards, for Farms Evaluated in 2015

Counties completed

3,663

determinations of a farm’s compliance
with state agricultural performance
standards preservation

Approximately

75%

of these sites were determined to be
fully in compliance with current state
standards

EVAAL and STEPL Work Hand in Hand

Counties trying to make their conservation dollars work harder than ever are using tools that will never touch the soil and water they're helping to save.

Computer modeling programs are helping them analyze data to learn where sources of non point pollution are coming from, and how much of a factor the source of pollution is.

The U.S. Environmental Protection Agency developed STEPL – the Spreadsheet Tool for Estimating Pollutant Loads. The Wisconsin Department of Natural Resources developed EVAAL – Erosion Vulnerability Assessment for Agricultural Lands.

“Both are looking at what’s coming off the land,” said Theresa Nelson, a water resources engineer with the DNR. “EVAAL tells you where to focus. It doesn’t necessarily tell you if erosion is occurring, but if it were, here’s where it would be. STEPL tells you the amounts of the pollutant loads.”

STEPL is good on a large scale, she said. It’s good for planning, because it gives an idea of what’s going on in a watershed. EVAAL helps focus on smaller areas to make the best use of limited resources.

Marinette County conservationist Greg Cleerman said his office used STEPL for pre- and post-project estimates of nutrient runoff in planning for the Lower Pesticide River Watershed and the Trout Creek Watershed. “We used it to get average field sizes, and pollutant loading information. We used it in conjunction with BARNY data.” BARNY is the short-hand name for the Wisconsin Barnyard Runoff Model, a method developed years ago and used to estimate pollutant reduction.

Cleerman turned to Outagamie County for assistance in using this tool. Outagamie County conservation technician Sarah Francart said she and her colleagues used both EVAAL and STEPL in developing 9 Key Element watershed plans in the Lower Fox River Basin. It’s a primarily agricultural area with animal feedlots, as well as gully erosion and streambank concerns.

“STEPL gives estimates for counties, but EVAAL is more site-specific. We use EVAAL outputs to modify the STEPL model,” she said. “It all gives us a better grasp of what’s actually happening.”

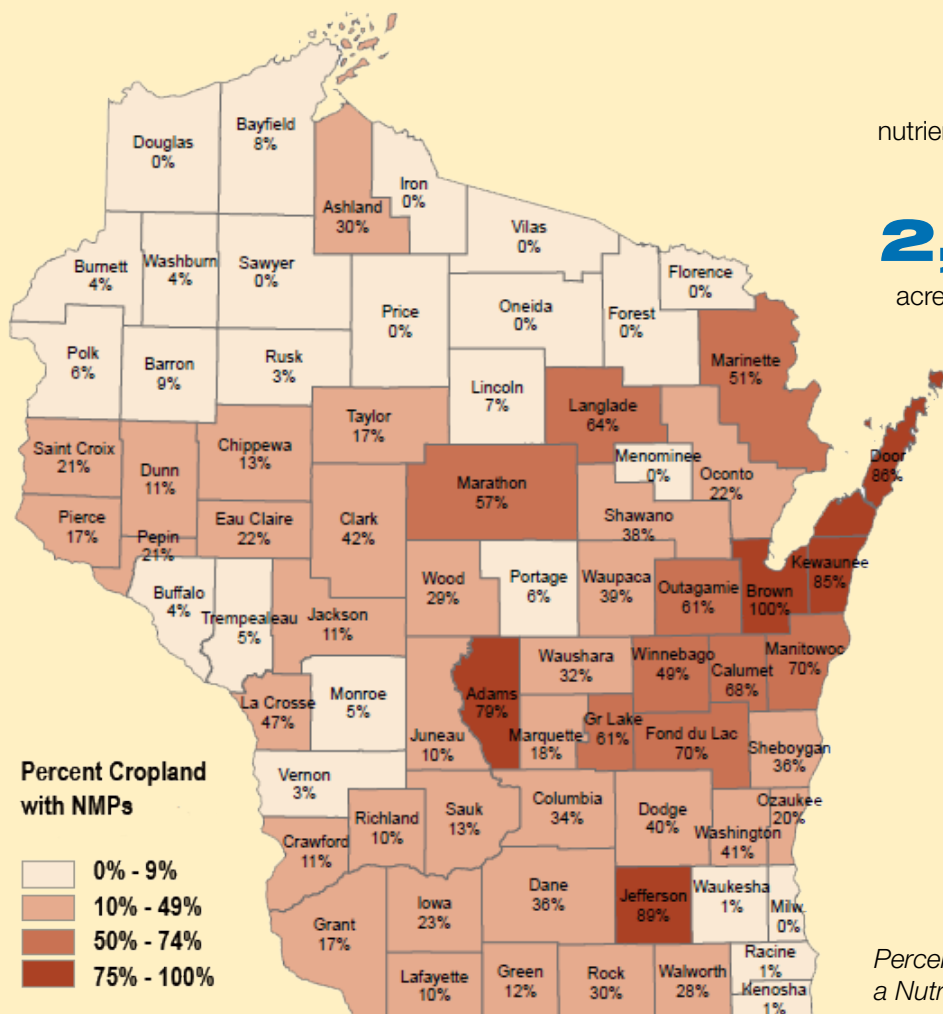


Nutrient Management Planning in Wisconsin in 2015

Nutrient management planning benefits the farmer, and land and water resources, by helping the farmer apply the right source of nutrients at the right time, the right rate, and the right place to meet crop needs and minimize nutrient losses from the field.

- Identify practices and rotations that can improve yield
- Reduce soil erosion
- Be more efficient in the use and placement of nutrients
- Save money by reducing purchased fertilizer
- Reduce environmental risks from manure and other nutrients
- Protect surface water and drinking water

Status of Nutrient Management Planning in Wisconsin in 2015



6,708

nutrient management plans developed

2,875,770

acres, or 31 percent of Wisconsin's cropland covered

11%

increase in covered acres since 2014

Percent of County Cropland Covered by a Nutrient Management Plan

Helping Farmers with Nutrient Management Planning

1,591 of the plans were developed in 2015 were written by the farmer

Counties used a combination of strategies to train farmers to develop plans in 2015.

- 44 counties provided one-on-one training
- 33 counties provided small group training
- 19 counties hosted instruction for large groups
- 19 counties did not offer training

An additional 49 training sessions for farmers hosted by the Wisconsin Department of Agriculture Trade and Consumer Protection supported local training efforts.

Nutrient Management Farmer Education (NMFE) Grants in 2015

These grants are provided to local organizations by the Wisconsin Department of Agriculture, Trade and Consumer Protection. The grants are used to develop educational programs that teach farmers to develop their own nutrient management plans.

\$163,000 in grant dollars awarded

14 grantees received a grant award

269 nutrient management plans written with grant assistance

69,273 acres covered by a plan supported by the grant

“Once we showed the value of manure produced on an operation, there was a good discussion at the training event on the importance of crediting on-farm nutrients to take advantage of those nutrients for both economic and environmental reasons.”

– NMFE grant recipient



Jennifer Kauffman with her daughters and her dairy herd on pasture in Marathon County

Pastures Enable Lifestyle Change, Achieve Resource Protection

Bill Kolodziej has a passion for putting land into sod. Jennifer Kauffman was a full-time surgical assistant on weekends looking for a different way to make a living while raising her family.

“I decided I wanted to try my hand at raising my daughters on a dairy farm,” she said. At the beginning, she had three cows that she milked in a shed. Soon, the calves were starting to accumulate. As she learned a little bit about rotational grazing, it seemed like a good way to go on her Stratford farm. So she called the Marathon County Conservation, Planning and Zoning Department.

Turns out, that call was the start of achieving her goal. Land and Water Program Director in Marathon County, Paul Daigle, has a long-standing interest in grazing, and Kolodziej is the office’s grazing specialist.

“Our interest is to reduce agricultural runoff in all of Marathon County. Rotational grazing is a key tool to reduce runoff,” Kolodziej

said. “The difference between row crops and pasture is that pasture has very little runoff.”

Kauffman and her husband, Kip, had been renting most of their 78 acres to a neighboring farm. Kolodziej coached her on how to plant these acres to transition the grain fields into pastures. Working with the renter, she seeded the fields with meadow fescue and clover, with wheat planted over it. When the wheat came off, she had pasture land, and she’s never had to reseed.

Next, she built an open-sided structure with a bedding pack to house her cows in winter, using the straw bales she buys as a windbreak, and scraping the alley once a day. Those scrapings get spread on the pasture; completing the county’s nutrient management training class helped her understand how those nutrients work for her. She then built a six-cow milking parlor. Her cows take care of getting themselves there twice a day. And now she also has 20 calf hutches.

For the first 2 years, Kolodziej visited every other week, to be sure she wasn’t overgrazing or undergrazing, advising her on things like dry matter calculations, working out the formulas and science. “After that, she took over and did just fine,” he said. “Eventually the farmer develops a sense of judgment and knows what to do.”

“Those biweekly visits were worth the effort,” Kauffman said. Kolodziej added, “Because if the farmer fails, they go back to plowing up the soil. But you can’t beat a permanent pasture for improving soil health compared to agricultural tillage.”

Kaufmann moves her Jersey herd every day during the grazing season, completing a 21-day rotation about five times a year. The cows know when they see the four-wheeler coming that she’s moving the fence and they’ll get a whole new buffet.

Kauffman's original goal was to milk 35 head. Today, she's up to 54 cows – "Four more than I want," she added. She keeps a bull on pasture with the cows, keeps dry cows in a lower-quality "sacrifice pasture" near the barn because she doesn't want them to calve in the grazing paddocks, and has her heifers custom raised because she doesn't have facilities for them. She ships her milk to Dairy State Cheese in Rudolph. Besides the invaluable technical assistance that Kolodziej provided, Kauffman had cost-sharing help from the USDA Natural Resources and Conservation Service and from Marathon County for fencing, seeding, and building a lane that doesn't get churned up during mud season.

Marathon County's intent is to educate and demonstrate to livestock producers of all scales that intensive rotational grazing is a productive and profitable way to farm. It has economic benefits, lifestyle benefits, and environmental benefits. Of course, this way of farming must fit with their individual skills and farming ideas.

These educational efforts continue in the Big Eau Pleine Watershed. Six field days are held each year for University of Wisconsin-Stevens Point students, taking them to a farm to learn that pastures can be managed to produce high quality milk or meat and still protect the environment. And interest in grazing remains high among farmers in the county. To date, there are 25,000 acres in permanent grazing land, and at an early summer field day for farmers, 100 people showed up. "The potential for reduced labor and less equipment, added to the current low milk prices and cheap feed costs, mean rising interest in grazing," Kolodziej said.

As for Kauffman, "I wouldn't say this is much less work than I was doing as a surgical assistant, but I'm home," she said. And that has made a difference.



Kauffman's cattle grazing on clover, a major component in her pastures



Portable electric fencing that cordons off grazing paddocks



Completed barnyard

Barnyard Fix Relies On Commitment, Partnership

Barron County Conservationist Tyler Gruetzmacher's email tagline reads "Soil Conservation -- Getting running water to walk." That was exactly the goal when he started working with Gerald Mlejnek on a barnyard improvement project in 2009 – slow down the water and keep the soil where it was intended to be. With the nature of a patiently and persistently moving stream, Gruetzmacher and Mlejnek worked together over the next six years to address conservation issues at the site and improve the health of the stream and downstream lakes. Pools that feed the stream that were full of sediment and algae just 6 years ago are now clear nurseries for tadpoles and brook trout fry. The barnyard, which was a muddy slog in a wet year, now sports 2 reinforced concrete barnyards that improve the management of the manure. The changes that ultimately improved the neighborly relationship between the cattle and the stream all started with a good fence.

The 60 head dairy farm is located on the

headwaters of a native brook-trout stream that drains to Tuscobia Lake, which ultimately drains to Rice Lake. Rice Lake is on Wisconsin's list of impaired waters due to algal growth as a result of excess nutrients and sediments. The dairy farm was having trouble fixing a washout during a wet year, a problem that was compounded by milk prices that had fallen to a 6-year low after record highs in 2007 and 2008. The Mlejneks felt the strain, which made it difficult to plan new projects beyond just doing the things that need to be done. As a result, the barnyard was sending sediment and phosphorous downstream, resulting in a resource loss to the Mlejneks' farm, and an increase in sediments and nutrients to Tuscobia and Rice Lakes. "The area is a series of lakes which were really just deep marshes before the dam was built in Rice Lake," says Gruetzmacher. The shallow flowages downstream of a predominantly agricultural landscape have regular issues with excess nutrients flowing into the waterways. Gruetzmacher knew that something needed to be done to improve the situation on the farm and he set out to come up with a solution that would work for both the land and the producer.

"The Mlejneks knew that an improvement was needed and they were very approachable" says Gruetzmacher. "Everyone was invested in the project, conceptually, but it was a matter of putting together the funding to make the improvements a reality." With that in mind, Tyler approached the Rice Lake, Lake Protection and Rehabilitation District for funding to support the first step in the process: installing 5,300 feet of fencing to protect an eroding stream bank in the pasture. Traditionally, the organization had focused efforts within the lake district, and on managing of native aquatic plant life. However, the district has started to reach outside of it's

boundaries. “There is a recognition that making improvements to Rice Lake means having to reach out into the watershed to make changes,” Gruetzmacher says. This project provided the organization with an opportunity to invest in work upstream to improve the water flowing into the lake. Matched with Soil and Water Resources Management funding from the Wisconsin Department of Agriculture, Trade and Consumer Protection, and labor from the Mlejnek family, the district provided support to complete the critical fence project. With this infrastructure in place, Gerald excludes the cattle from the stream in poor weather and allows them to graze the enforced banks when it is appropriate.

With the success of this first project and improved financial stability on the farm, Tyler worked with Gerald to design a barnyard runoff control system. In April 2013, the 2 were successful in obtaining a Targeted Runoff Management Grant from the Wisconsin Department of Natural Resources. “Tyler was really good to work with,” says Gerald. “You know you hear these stories about how the government is out to get you, or hard to work with, but that just wasn’t the case.” Gruetzmacher says he was looking for this project to be a win-win for the land and for the Mlejneks. The project reminded him of a quote from Aldo Leopold: “When the land does well for its owner, and the owner does well by his land—when both end up better by reason of their partnership—then we have conservation. When one or the other grows poorer, either in substance, or in character, or in responsiveness to sun, wind, and rain, then we have something else, and it is something we do not like.”

Despite the funding and design momentum, the 2014 construction season slipped by without implementation due to poor weather and unavailability of area contractors. Undeterred, the 2 set about with renewed vigor in 2015. “I never questioned if the project would get done,” says Gruetzmacher. “It was just a matter of



Site before barnyard improvement



Site after barnyard runoff control system installed

getting the timing right.” With the contractors available, the construction plans approved and funded, and the weather finally cooperating, a pair of barnyard runoff systems was installed in the summer of 2015. These yards allow for the feeding of both heifers and cows on reinforced areas. “There are trade-offs, like with anything,” shares Mlejnek. “I do have to keep them in at night now, but it certainly is more pleasant.”



Cattle in new barnyard

Gruetzmacher is enthusiastic about the improvements at the site. “It has transformed the area. The initial evaluation of the loss of phosphorus from the barnyards yielded annual discharges of 77.9 lbs and 34.3 lbs for the 2 areas. I think those numbers may have been low for what was actually happening. An evaluation post construction showed annual discharges of phosphorus of 4.8 lbs and 4.5 lbs for the yards. It might even be lower - Gerald has been scraping the yards daily, preventing the buildup of manure. The stream will continue to heal for several years as the vast quantities of sediment and nutrients have been reduced by several orders of magnitude.”



Pool after practice installation

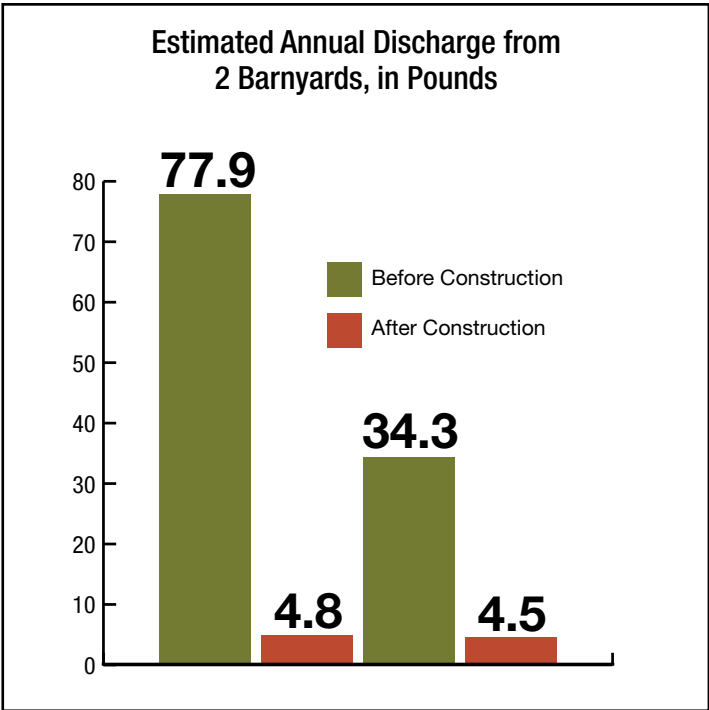
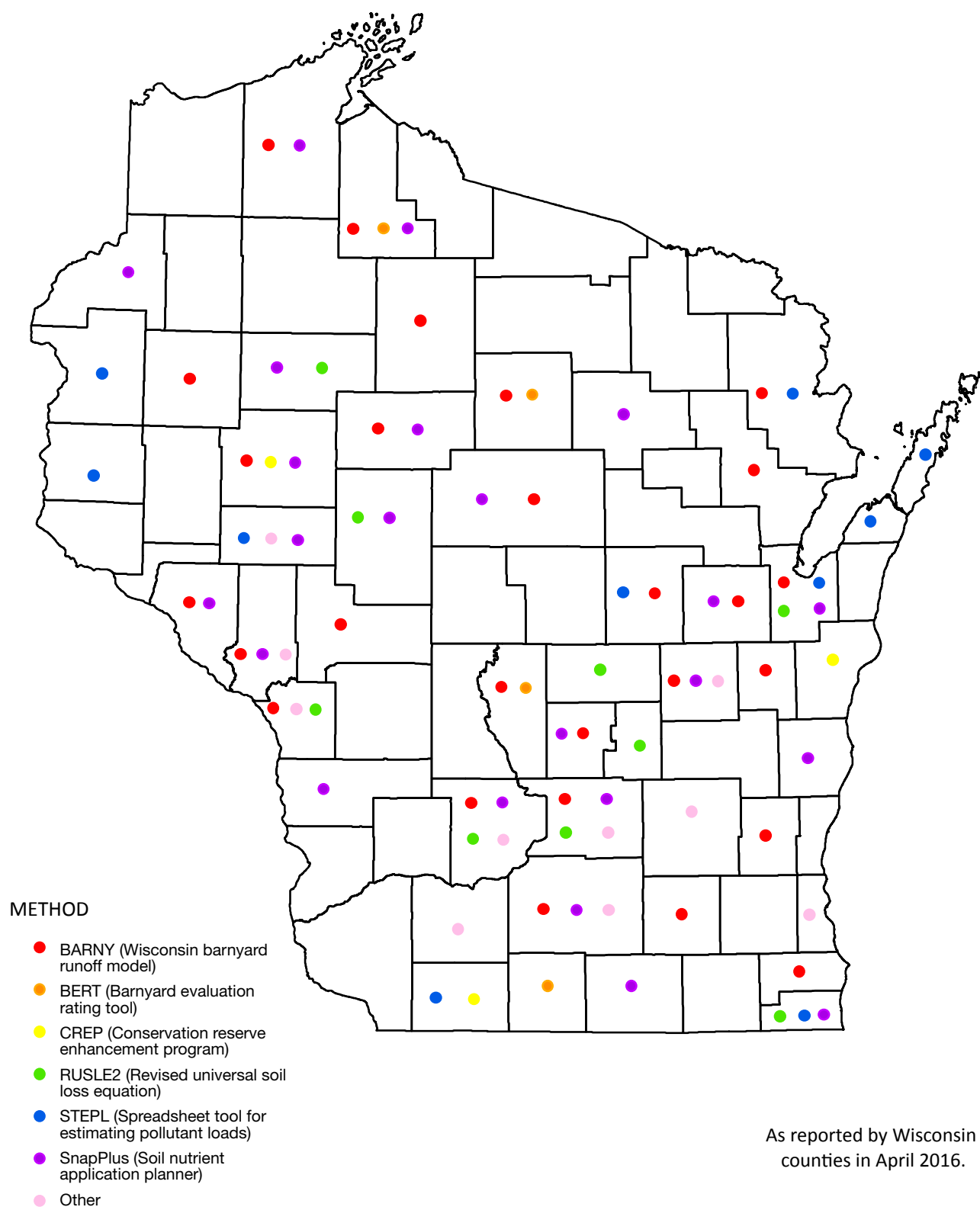


Figure 4

While it is early in the restoration process, visible signs of ecosystem health already abound. The final element at the site involved a 2-day effort to restore several spring-fed pools located in the pasture that had been filled with sediment over the years. With funding from the Rice Lake, Lake Protection and Rehabilitation District, several feet of sediment was removed from these pools, transforming them from 6-inch puddles containing a few tadpoles to 30-inch deep pools, capable of supporting brook trout for the first time in many decades. “It has been a very satisfying project to work on,” says Gruetzmacher. “I look forward to observing the healing process for many years to come.”

Photos: Barron County Soil and Water Conservation Department

Methods to Estimate Phosphorus and Sediment Reductions





Wisconsin Conservation Activities in 2016

Each year in Wisconsin, conservation professionals in all 72 counties carry out soil and water conservation activities to achieve resource protection. This work is guided by resource needs, prioritization of these needs, and careful consideration of available resources.

One tool to help make these difficult decisions is a county's land and water resource management plans. These are local plans, developed in consultation with local partners and landowners. Each year, counties develop work plans to implement their land and water resource management plans.

Although each county is unique, many of the resource issues identified as local priorities in one county are also identified as a need in other counties. A quick review of county work plans for 2016 reveals the diverse, and significant, scope of conservation work anticipated by county conservation departments.

Farm visits

- 63 counties plan to complete farm inspections to review conservation status on about 3,650 farms.
- Prepare or update over 500 conservation plans.

Cropland and pasture conservation practices

- 50 counties plan to assist producers in preparing or hiring private agronomists to develop over 800 nutrient management plans in 2016.
- 47 counties plan to assist in installing about 250 grassed waterways, 86 grade stabilization or water and sediment control structures.
- Almost 550 previously prepared nutrient management plans will be monitored for conservation compliance.
- About 23,000 acres of cropland will have management practices implemented to reduce sheet and rill erosion and improve soil health.

Livestock conservation practices

- 42 counties plan to provide technical assistance to install 85 barnyard runoff control systems.
- 41 counties plan to assist with constructing 85 manure storage systems.
- 36 counties plan to properly close another 85 unused manure storage structures.
- More than 100 livestock operations will have practices installed to address runoff from barnyards and feed storage areas and protect streambanks from erosion.

Technical assistance related to permits

- 52 counties plan to work with 328 livestock operations to obtain county manure storage permits for new or modified facilities or closure of unused facilities to ensure conservation standards are met.
- 8 counties anticipate 18 local livestock facility siting permits under ATCP 51.
- 22 counties anticipate providing inspection and technical assistance related to over 1,700 local stormwater, construction site, and erosion control permits.
- 8 counties estimate that they will do 376 inspections and review of reclamation plans to limit erosion and water quality problems for non-metallic mining operations.
- 20 counties plan to provide assistance to landowners in obtaining 136 Chapter 30 permits for soil and water conservation work to protect navigable waters.
- Many counties will provide assistance and conduct inspections related to winter manure spreading permits, practices installed with cost sharing, and county shoreland permits.



An installed grassed waterway system with erosion control netting and a turf reinforcement mat in Fond du Lac County



Installation of a large lined waterway in Sheboygan County

Other needs identified in county Land and Water Resource Management Plans

- 34 counties plan to install shoreland protection practices at about 120 sites.
- 36 counties plan to properly close about 251 wells to achieve groundwater protection.
- 19 counties plan to provide assistance to restore wetlands on 70 sites to improve water quality and provide wildlife habitat.
- 33 counties plan to enroll an additional over 400 sites into the Conservation Reserve Enhancement Program (CREP) or install other riparian protection practices.
- Counties will implement local conservation priorities include aquatic and terrestrial invasive species control.

Summary of Practices Installed with State and Federal Assistance

Table 1: Practices Installed Using Soil and Water Resource Management Funds in 2015, WI DATCP

Conservation Practices		Acres	Feet/Number Installed
Soil Erosion Control	CREP Equivalent	9.13	
	Animal trails and walkways		13,529 ft
	Cover and green manure crop	1,181.00	
	Critical area stabilization		39.7
	Diversions		11,445 ft
	Field windbreaks		33,818 ft
	Grade stabilization structures		44
	Riparian buffers	14.99	
	Sinkhole treatment		1
	Stream bank crossing		3,631 ft
	Streambank and shoreline protection		21,037 ft
	Subsurface drains		11
	Terrace systems		6,855 ft
	Underground outlet		26
	Water and sediment control basins		6
	Waterway systems	177.93	
Manure Management	Manure storage closure		26
	Manure storage systems		24
	Access roads		7,353 ft
	Barnyard runoff control systems		33
	Livestock fencing		49,702 ft
	Livestock watering facilities		20
	Milking center waste control systems		3
	Nutrient management	78,103.00	
	Roof runoff systems		14
	Roofs		1
	Sediment basins		2
	Waste transfer systems		13
	Wastewater treatment strips		7,852 ft
Other Practices	Prescribed grazing; permanent fencing		70,143 ft
	Well decommissioning		169
	Wetland development or restoration	9.50	
	Feed storage runoff control systems		6

Table 2: Agricultural Best Management Practices Installed in Calendar Year 2015, WI DNR

Best Management Practice	Installed Amount
Access Roads and Cattle Crossings	983 feet
Animal Trails & Walkways	200 feet
Barnyard Runoff Control Systems	17
Critical Area Stabilization	4 acres
Diversions	470 feet
Feed Storage Leachate	1
Heavy Use Area Protection	1 acre
Livestock Fencing	2,922 feet
Livestock Watering Facilities	3
Manure Storage System Closure	2
Manure Storage Systems	25
Milking Center Waste Control Systems	3
Nutrient Management	5,644 acres
Roof Runoff Systems	3
Roofs	7
Sediment Basins	150 feet
Stream Crossing (incl. Fencing)	3
Streambank/Shoreline Protection	1, 208 feet
Underground Outlets	670 feet
Waste Transfer Systems	9
Water and Sediment Control Basins	1
Waterway Systems	2 acres
Well Decommissioning	1

Table 3: Urban Best Management Practices Installed in Calendar Year 2015, WI DNR

Best Management Practice	Installed Amount
Storm Water Management Plan Development	5
Information & Education Activities	4
Urban Detention System	6
Urban Stormwater/Erosion Plan	8
Land Acquisition	2 acres
Other Urban Practice	2

Table 4: Top 40 Environmental Quality Incentive Program Obligated Practices by Practice Count in Fiscal Year 2015, USDA-Natural Resources Conservation Service

Practice	Practice Count (Number)	Obligation (Dollars)
Cover Crop	513	\$2,337,026
Prescribed Grazing	288	\$627,722
Fence	246	\$1,008,064
Mulching	228	\$363,258
Grassed Waterway	187	\$379,773
Critical Area Planting	156	\$55,827
Pipeline	132	\$323,567
Conservation Cover	115	\$553,328
Forage and Biomass Planting	115	\$506,525
Heavy Use Area Protection	110	\$887,436
Watering Facility	110	\$68,743
Nutrient Management	86	\$419,592
Waste Transfer	80	\$1,283,480
Stream Crossing	73	\$135,727
Forest Management Plan	72	\$71,889
Streambank and Shoreline Protection	72	\$881,327
Brush Management	68	\$245,199
Obstruction Removal	67	\$80,085
Comprehensive Nutrient Management Plan CAP	66	\$604,516
Waste Storage Facility	61	\$5,784,793
Grade Stabilization Structure	56	\$472,460

Practice	Practice Count (Number)	Obligation (Dollars)
Pumping Plant	55	\$595,670
Access Road	50	\$305,348
Forest Stand Improvement	42	\$121,305
Spoil Spreading	41	\$82,084
Underground Outlet	40	\$58,155
Seasonal High Tunnel for Crops	38	\$295,257
Residue and Tillage Management—No-Till/ Strip Till/ Direct Seed	36	\$29,482
Vegetated Treatment Area	36	\$183,435
Waste Facility Closure	35	\$716,784
Tree & Shrub Establishment	35	464,302
Structures for Wildlife	35	\$14,464
Stream Habitat Improvement	30	\$71,330
Subsurface Drain	30	\$172,204
Early Successional Habitat Development and Management	32	\$157,848
Tree & Shrub Site Preparation	25	\$42,350
Roof Runoff Structure	24	\$36,490
Prescribed Burning	23	\$98,888
Conservation Crop Rotation	20	\$32,364
Diversion	18	\$21,205



Notes



