

2021

# Wisconsin Report ON Soil AND Water Conservation
















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Cover photo: Harvestable buffers in the field provide benefits to the soil, the farm, and wildlife  
Photo courtesy of Outagamie County

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## Introduction

This past year has brought continued challenges to our state and communities as a result of COVID-19 pandemic precautions and restrictions on in-person events. Despite these challenges, the conservation community across the state found ways to thrive and to foster successful conservation efforts. In 2021, dedicated landowners, farmers, conservationists, governments, and other partners used tried and true conservation strategies to achieve soil and water conservation objectives while also finding opportunities to try different approaches to steward the state's natural resources.

The 2021 Wisconsin Soil and Water Annual Report highlights the successes of these conservation efforts across the state. Throughout the report, you will read stories that capture the diverse nature of Wisconsin's soil and water resource needs and the steps taken to meet these needs.

In Wisconsin, we are fortunate to have a diverse group of partners willing to take steps to ensure the health of our natural resources. Each year, there are new opportunities to support the thoughtful management of our soil and water resources. As our state's conservation partners seize these opportunities, we know that the quality of our natural resources and the quality of life for all state residents will only improve.

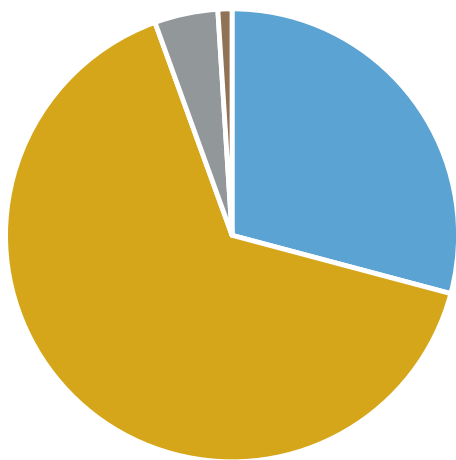


Wetland cell and sediment basin designed to reduce nutrients to surface water.  
*Photo courtesy Outagamie County.*



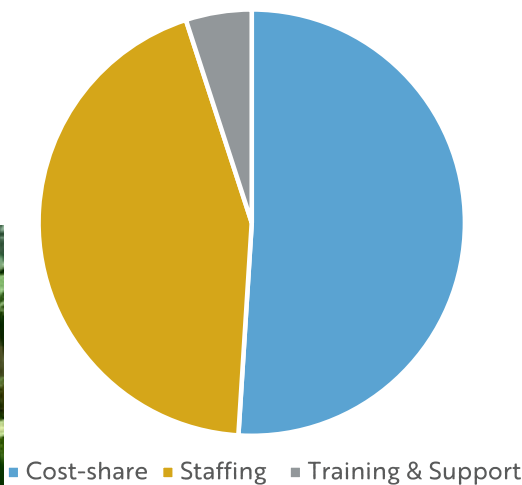
## 2021 Conservation Funding in Wisconsin

### Overall Funding



■ State ■ Federal ■ Other ■ Grants

### Use of State Funding



■ Cost-share ■ Staffing ■ Training & Support

✎ **\$11.6 million** in state funding to cost-share agricultural and urban conservation practices (\$5.6 million from DNR; \$6 million from DATCP).

✎ **\$10 million** in state funding available for local conservation staff and support.

✎ **\$1.2 million** in state funding used to support necessary training and the development of conservation tools and standards.

✎ **\$1.4 million** in grant funds for conservation projects, not including grants from DATCP and DNR.\*

✎ **\$3.7 million** for urban and agricultural conservation projects from other sources including county levy, lake districts and associations, permit fees, municipal support, donations, and permitted facilities and other federal programs.\*

✎ **\$51.4 million** from the federal USDA-NRCS for conservation activities through the Environmental Quality Incentives Program (\$30.5 million), the Conservation Stewardship Program (\$18.1 million), and the Agricultural Conservation Easement Program (\$2.8 million).

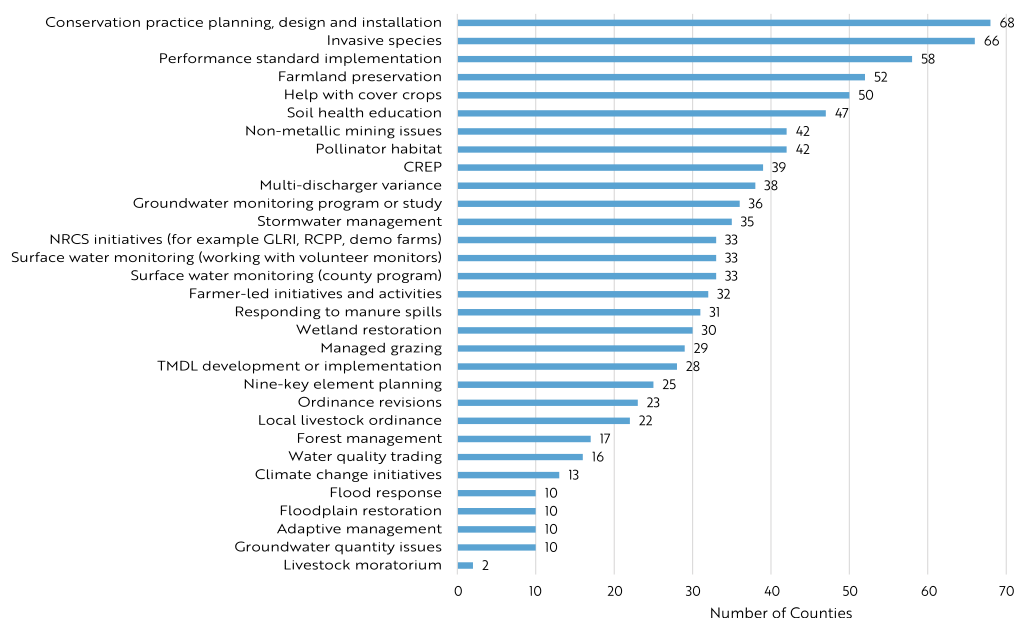
\*As known and reported by the counties in March 2022.

Image: Multi-species planting benefits soil health.  
Photo courtesy of Fond du Lac County.

## 2021 Wisconsin Conservation Activities

Conservation challenges across the state are diverse. This diversity requires actions designed to address the specific resource needs. Regardless of the specific requirements for addressing the resource concern, efforts to respond to resource needs are likely led by one of Wisconsin's 72 county conservation departments or other conservation partners. Through this leadership, the outcome of action is an improvement in the health of Wisconsin's soil and water resources. The figures below describe the range of conservation issues that the state's 72 county land and water conservation departments engaged in during 2021. The figures below describe the range of conservation issues that the state's 72 county land and water conservation departments reported that they engaged in during 2021.

### County Engagement on Conservation Topics, 2021\*



### Top Conservation Issues, by Time Spent in 2021

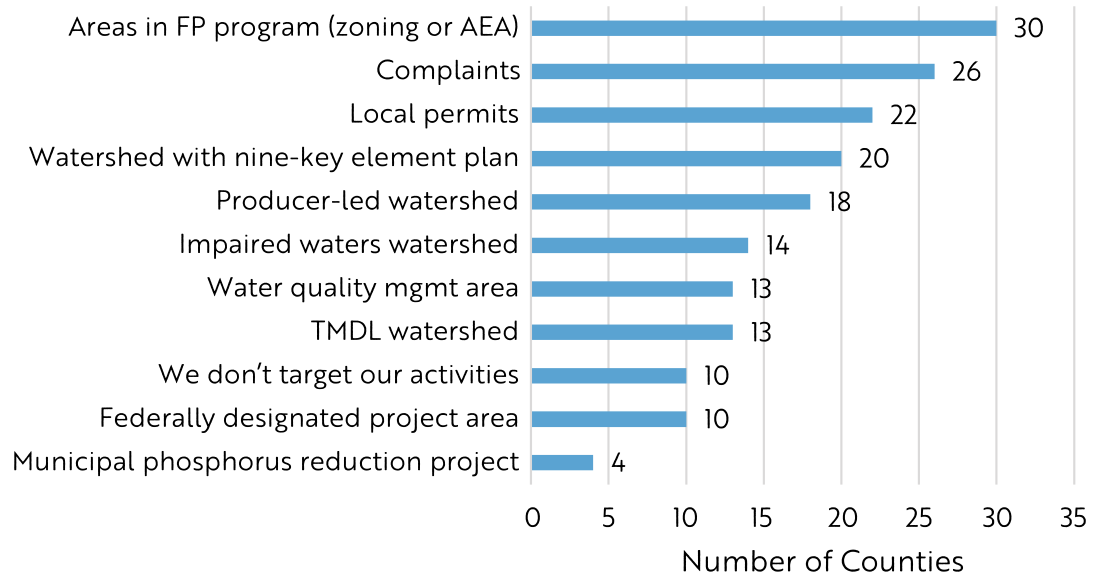




## Targeting Conservation

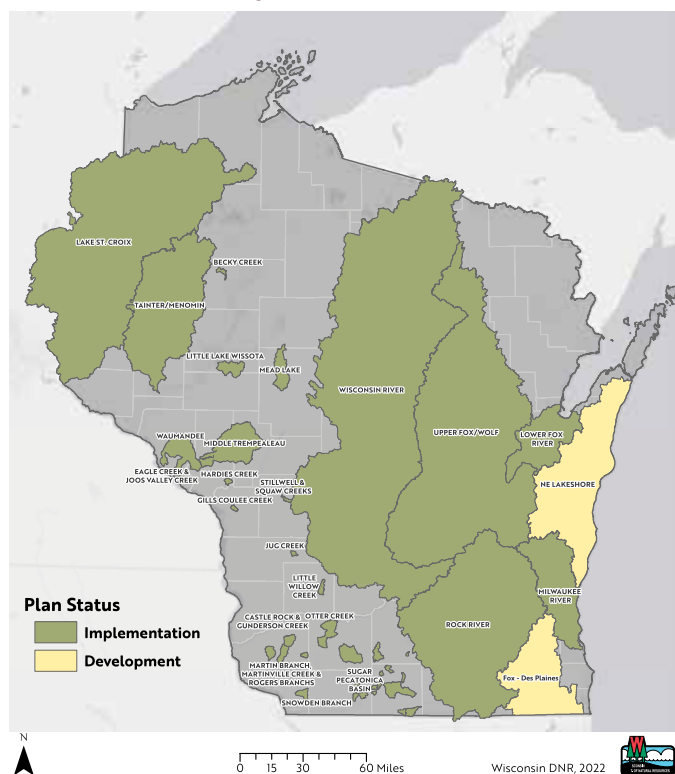
Given the range of conservation issues affecting our state and our communities and the limited resources available to address soil and water resource needs, prioritization of conservation efforts is critical. Conservation professionals throughout the state consider a number of factors when targeting conservation efforts. The figure below highlights some of the main strategies to make decisions about how and where to spend conservation staff time and funding resources. These factors range from prioritizing specific resources to targeting efforts in a specific watershed. Local planning efforts also inform conservation work and include county land and water resource management plans and watershed-based plans. Although there are conservation activities happening all across the state and in every county, the following maps help highlight some of the geographic areas where targeted conservation efforts occur.

### *Top Strategies to Target Areas for Conservation in 2021\**

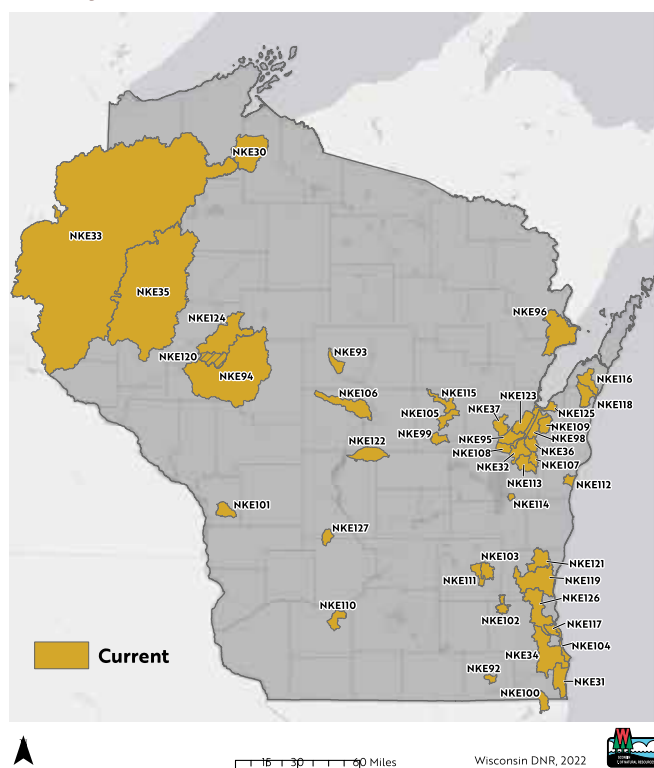


\*As reported by counties in 2022

## Total Maximum Daily Load Plans, 2022

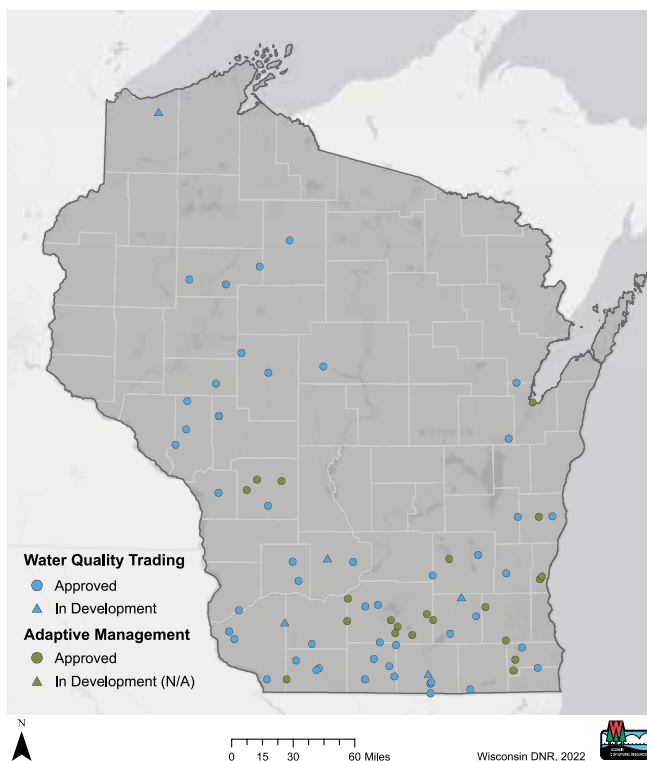


## Nine Key Element Plans, 2022



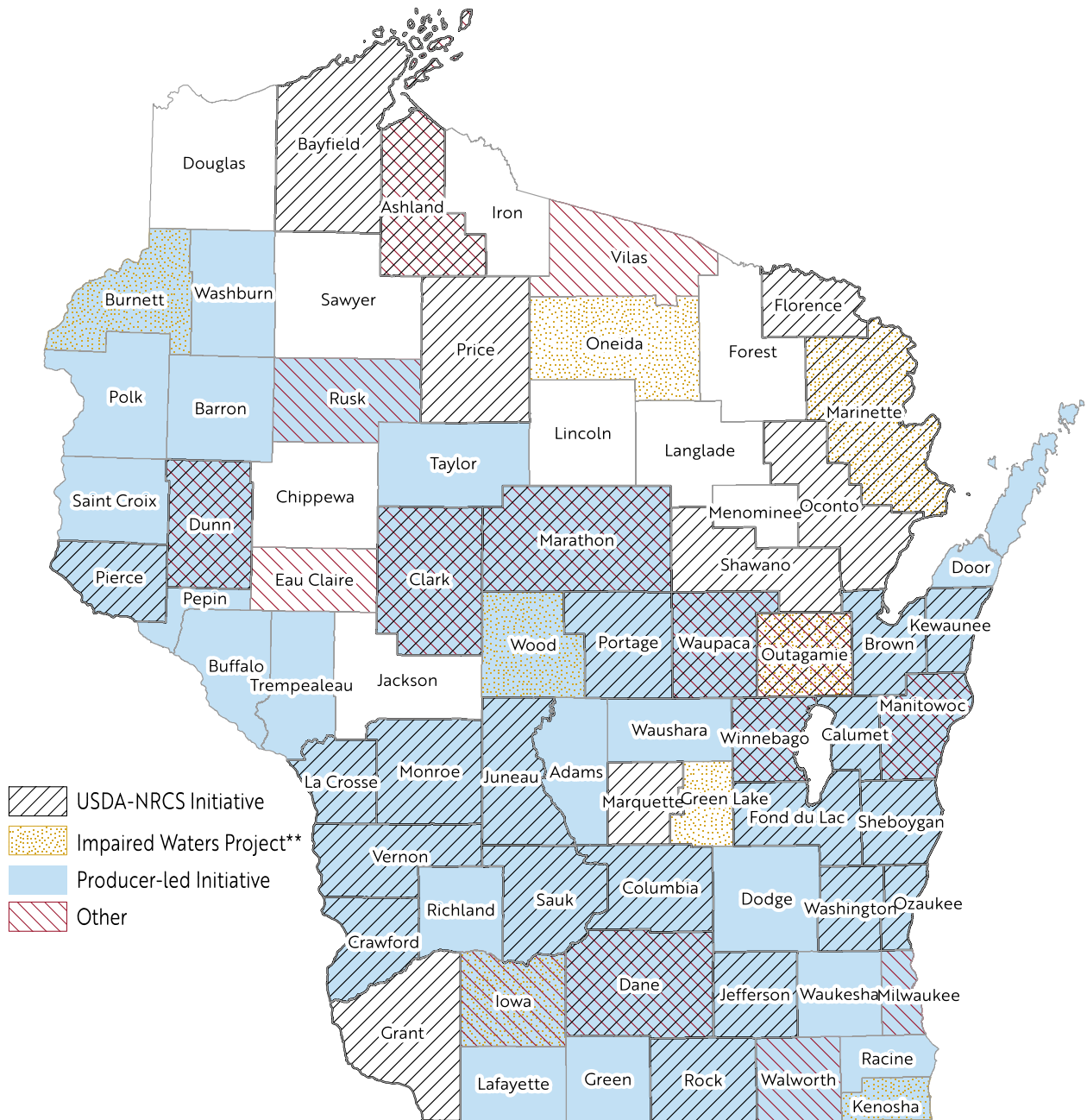
Harvested cropland acres are derived from National Agricultural Statistics Service, Census of Agriculture, 2017. The 2017 census reported 9,234,611 harvested cropland acres.

## Water Quality Trading and Adaptive Management Sites, 2022





## Watershed Based Activities within Counties\*

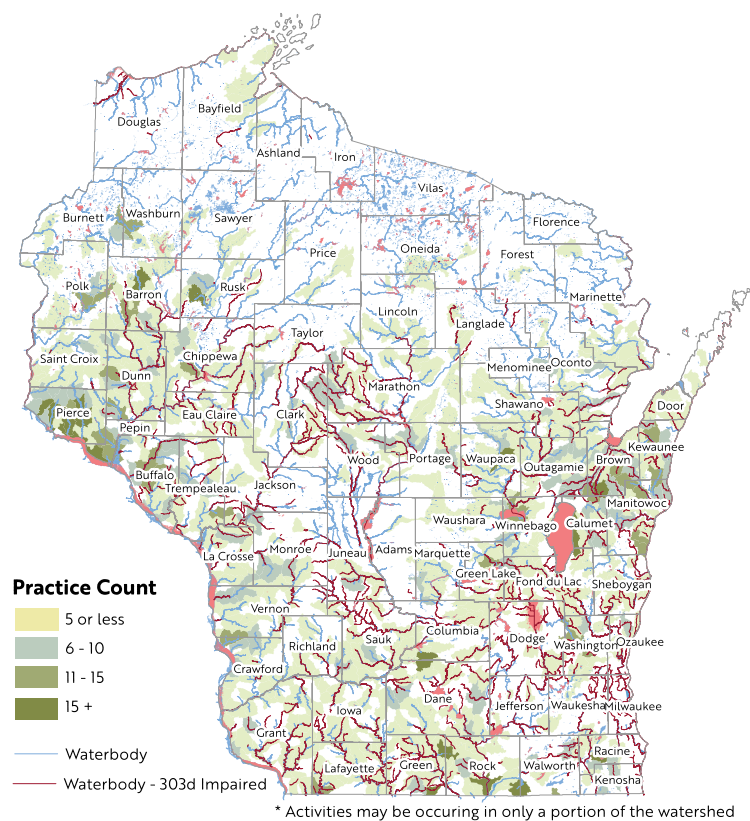


\* Activities may be occurring in only a portion of the county

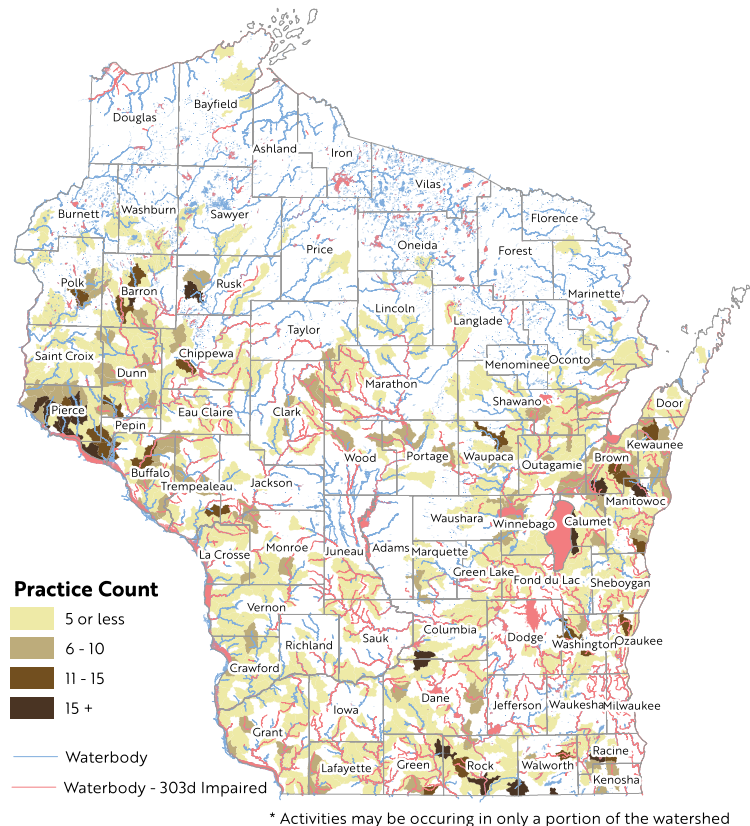
\*\* Other than TMDL and 9-key element]

Federal sources of funding available to landowners through U.S. Department of Agriculture-Natural Resource Conservation Service (USDA-NRCS) allow for the installation of a significant number of conservation practices in Wisconsin. The following maps show the relative location and number of soil quality and water quality practices obligated through USDA-NRCS programs by watershed in 2021.

# Water Quality Practices Obligated by USDA-NRCS by Watershed, 2021



# Soil Quality Practices Obligated by USDA-NRCS by Watershed, 2021\*





## Site Assessment and Evaluation

Visiting a site in-person to assess resource needs is a critical part of the work that conservation professionals engage in every day. By visiting a site, it allows for the development of a plan, specific to that location, to address any identified resource concern. In addition, evaluations conducted through a site visit can also ensure continued eligibility to receive tax credits through the state's farmland preservation program or to determine whether the site meets the state urban and agricultural conservation standards.



Fond du Lac County Watershed Outreach Coordinator Zach Laughlin visits Dave Simon in the field as Dave no-till plants corn into a living rye cover crop.  
*Photo courtesy of Fond du Lac County.*

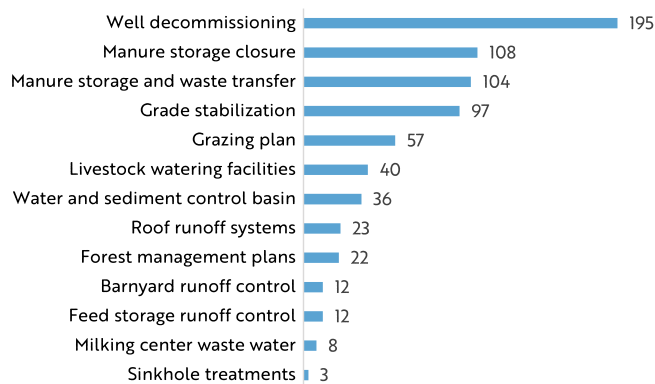
## 2021 Conservation Site Visits

- » **1,806** visits to determine compliance with state standards (in Wis. Admin. Code § NR 151)
- » **84%** of the sites visited met state standards
  - When a site did not to meet state standards, counties took the following actions:
    - » **21** counties contacted a DNR regional nonpoint coordinator for assistance
    - » **13** counties issued a notice of noncompliance as described in Wis. Admin. Code § NR 151
    - » **21** counties pursued enforcement through a local ordinance
    - » **10** counties applied for grant assistance from DNR
- » **2,966** farmland preservation program site visits
  - **90%** of the sites visited met the requirements for the farmland preservation program and state soil and water standards
- » **2,822** other site inspections, including storm water and construction site erosion control, forestry site inspections
  - **71%** of these sites met standards

## Conservation Practices

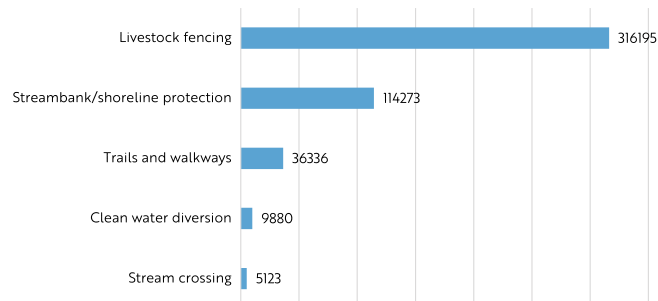
There are a wide-range of conservation practices that can be used to address a resource concern or meet a conservation objective. Grant funds from various public and private sources may be available to assist landowners, farmers, and others in implementing these conservation practices. Tables at the end of the report summarize practices that were installed using funding available through DATCP and DNR in 2021.

### Conservation practices installed in 2021, by number\*



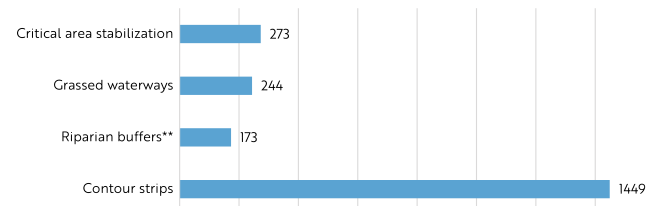
\*Installed with county assistance including funding, planning, design, construction or inspection. As reported in March 2022.

### Conservation practices installed in 2021, by feet\*



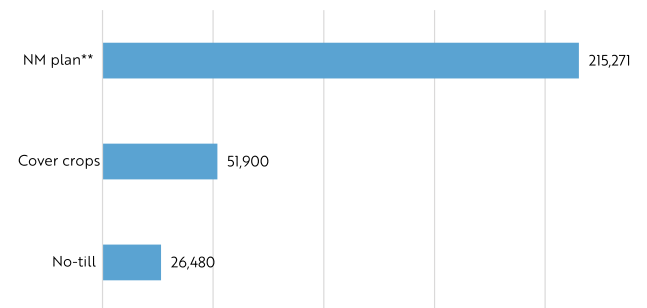
\*Installed with county assistance including funding, planning, design, construction or inspection. As reported in March 2022.

### Conservation practices installed in 2021, by acre\*



\*Installed with county assistance including funding, planning, design, construction or inspection. As reported in March 2022. \*\*Not including CREP acres

### Conservation practices installed in 2021, by acre\*



\*Installed with county assistance including funding, planning, design, construction or inspection. As reported in March 2022. \*\*New in CY 202



Newly constructed waste storage system.  
Photo courtesy of Outagamie County

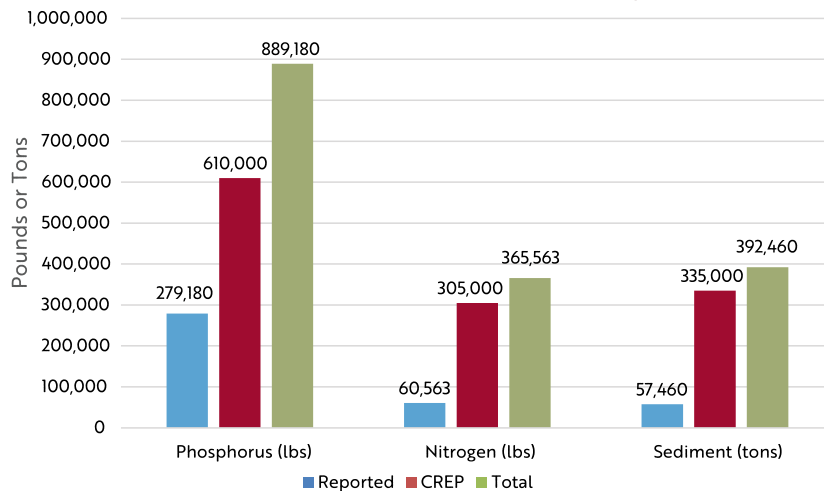


## Estimated Load Reductions

The implementation of various conservation practices helps improve the quality of soil and water resources by reducing nonpoint and point sources of phosphorus, nitrogen, and sediment. Nutrients and sediment are the main impairments to Wisconsin's waterbodies.

As conservation practices are implemented, some county land conservation departments report using models to help estimate how effective the practice is at reducing sources of phosphorus, nitrogen, and sediment. The figure below presents the estimated reduction of these pollutants in 2021, as reported by counties in March 2022 and reductions calculated in the annual Conservation Reserve Enhancement Program (CREP) report.

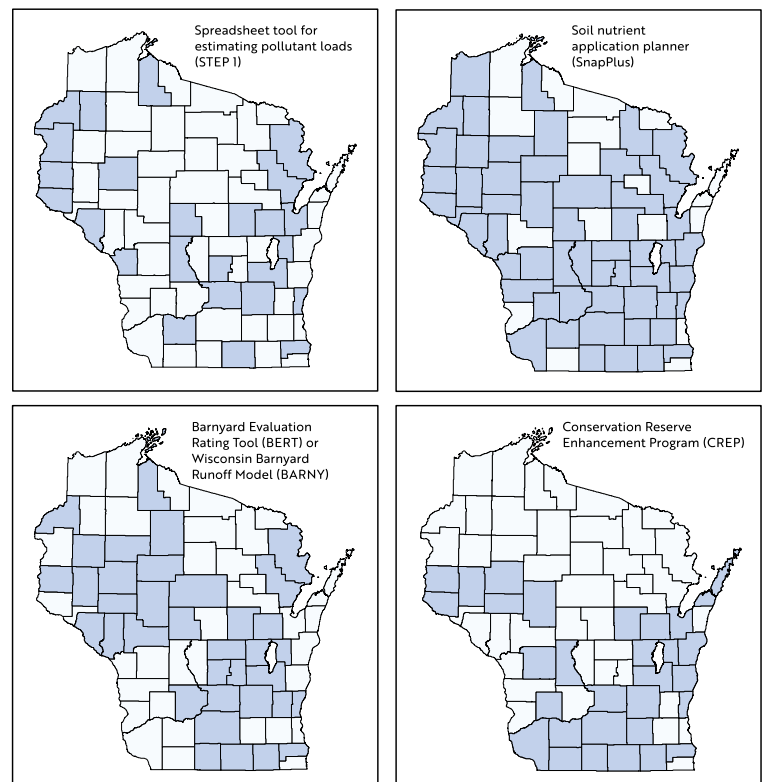
### Nutrient and Sediment Reductions, as Reported in 2021\*



\* Not all reductions of phosphorus, nitrogen and sediment achieved through conservation practices implemented in 2021 are tracked and reported. The numbers shown here capture only the known estimated reductions in 2021 as reported by counties in March 2022 or provided in the Conservation Reserve Enhancement Program's annual report. As a result, the numbers shown here are only a fraction of the total reductions in phosphorus, nitrogen, and sediment from conservation efforts in 2021.

### Methods Used to Estimate Nutrient and Sediment Reduction by County\*

\* As reported by counties in March 2022



# Managing Ecosystem Health

Conservation professionals across the state do not limit their activities to managing nutrients. The overall health of our ecosystems relies upon identifying and managing all types of threats, including the threats to plants and animals from invasive species.

In 2021, the number of counties that worked on issues related to aquatic invasive species increased to 63 – nearly every county in the state. The number of counties who worked on terrestrial invasive issues also increased to 59, up four from 2020. In addition, 14 additional counties conducted boat inspections in 2021.

Wildlife and habitat management is another important aspect of managing land and water resources. In 2021, 25 counties worked on wetland restoration projects for habitat, 48 sponsored tree and plant sales, and many others worked to increase pollinator habitat, restore native plants, and complete in-stream habitat work and fish passage. Most counties (65) processed claims regarding wildlife damage.

These efforts positively affect wildlife, but they also are critical to establishing or re-establishing plants and plant communities. In addition, activities, such as tree and plant sales, provide an opportunity for conservationists to connect with county residents.

*This year we exceeded our invasive species goals. Our staff did a great job and accomplished an enormous amount of work on both aquatic and terrestrial invasive species.*  
*Heather Palmquist, Iron County Conservationist*

*In 2021, we sold 52,650 trees and wildlife shrubs and 3,483 tree tubes. This program started in 1981 and remains an important program for our department to maintain a connection with more than 600 landowners each year.*  
*Kurt Calkins, Columbia County, Director of Land and Water Conservation*

## County Efforts to Address Aquatic and Terrestrial Invasive Species\*

Conducted plant surveys	47
Developed management plans	22
Implemented control or eradication strategies	47
Provided general informational materials	61
Conducted boat inspections	39

\*As reported by County Conservation Departments in March 202

Planting green in Fond du Lac County.  
Photo courtesy of Fond du Lac County.





## Enforcing Local Regulations

Local ordinances are adopted to regulate activities, often through a permitting process, that impact state soil and water resources. Once a permit is issued, the county ensures that permit conditions are met through monitoring and inspection. When permittees are out of compliance, the county works with the permittee to address the issue. In some instances, enforcement actions may be needed to ensure that resources are protected and permit conditions are met.

### Permits Issued by County Conservation Departments in 2021\*

Manure storage construction and transfer systems	116
Manure storage closure	121
Livestock facility siting	20
Winter spreading	249
Nonmetallic/frac sand mining	422
Stormwater and construction site erosion control	1,921
Shoreland zoning	1,890

\*As reported by County Conservation Departments in March 2022.  
Does not include permits issued by other county departments.

### Ordinance Monitoring and Enforcement Actions for Facilities Permitted Under Manure Storage and Livestock Facility Siting Ordinances\*

Compliance inspections	4,817
Facilities cited or fined for violations	17
Notices of violation or similar determination issued	42
Number of stop work orders issued	28
Referrals to corporation counsel for commencement of legal proceedings	10

\*As reported by County Conservation Departments in March 2022.







## Fostering Healthy Soil – Many Reasons, Many Ways

Soil contains billions of bacteria, fungi, and other microbes that are the foundation of an ecosystem that supports the majority of the food humans consume. Soil health is defined as the continued capacity of soil to function as a vital living ecosystem that sustains plants, animals and humans. Healthy soil gives us clean air and water, crops and forests, productive grazing lands, diverse wildlife, and beautiful landscapes. As world population and food production demands rise, keeping our soil healthy and productive is critical. Below are some strategies from counties across the state to protect and improve soil health.

### Outagamie County: The SHED

Outagamie County Land Conservation Department, in partnership with the Oneida Nation, identified 25 acres of tribal lands located on Jordan Court in the Town of Oneida for a Soil Health Education and Demonstration (SHED) facility. The SHED will be key in advancing conservation education and outreach through field days, workshops, and small group interactions, allowing community members and producers to share their experiences and learn about soil health practices. The SHED offers a central location to research and trial innovative cropping practices, educate and collaborate with producers and advisors, and demonstrate conservation equipment and cropping practices.

### Dane County: Continuous Cover Program

Growing plants year-round can increase water infiltration, reduce soil erosion, improve water quality, build soil health, enhance wildlife habitat, sequester carbon, and diversify production practices. In recognition of the value of continuous cover to meet soil health goals, Dane County started the Continuous Cover Program (CCP) in 2019. Through the program, the county is seeking to assist in maintaining continuous vegetative covers on agricultural lands.

In the program, landowners can select to convert conventional row cropped lands to perennial cool-season grass mixes that can be harvested for hay, native prairie mixes for pollinator habitation and restoration, or grazing forage mixes to provide feed for grazing animals. Once in the program, landowners agree to maintain the continuous cover for 15 years, and in return, the county provides cost-share assistance to establish the cover and invests in grazing infrastructure. A rental and maintenance payment is provided as well.

Interest in the program is high. From 2019 – 2021, 94 contracts have been signed with 1,418 acres certified and \$4,203,763 allocated. The program is fully funded by Dane County.



Field converted to grazing through the Dane County Continuous Cover Program.  
Photo courtesy of Dane County.



## Fond du Lac County: Soil Health Program

Fond du Lac County Land and Water Conservation Department started a county-based Soil Health Program in 2021. The goal of the program is to help farmers adopt soil health practices to benefit their business and improve water quality throughout the county.

During the first year of the program, 36 landowners participated and interest continues to grow in 2022, with 27 participants signed up in the first four months. The county funded the program in 2021, and for 2022, the program will continue through a combination of county and Soil and Water Resource Management funding.

*Participants receive a number of benefits including:*

- ✂ A free soil health test on a field of the farmer's choice
- ✂ A meeting to interpret and understand soil health testing results
- ✂ Cost-sharing for soil health practices, including novel soil health practices and equipment modifications
- ✂ Access to technical assistance from county staff to help with planning and other resources

As the program grows, the projects are evolving depending on farmer's interests and allow for innovative collaboration between county staff and farms. Projects range from conducting small-scale trials and on-farm research to scaling up practices to cover more acres. Projects funded through the program allow farmers to improve soil health and water quality and help farmers save money.



This sign helps draw attention to a soil health practice on a field in Fond du Lac County.  
*Photo courtesy of Fond du Lac County.*



## La Crosse County: Field Day in the Bostwick Creek Watershed

In La Crosse County, a field day was a chance to highlight how healthy soils provide a foundation for other successful conservation efforts. The field day, held in October 2021, brought together producers and conservation staff to share and learn about the value of soil health. The field day was hosted by Manke Farms Inc., the largest dairy producer in the Bostwick Creek Watershed. The Bostwick Creek Watershed has an approved 9 Key Element Plan, which outlines strategies for reducing phosphorus and sediment runoff from the predominately agricultural watershed. Key aspects of the plan promote the value of soil health, infiltration, and increased organic matter.

The focus of the field day was on the use of cover crops to promote soil health. Additional educational opportunities were available, including a simulation of rainfall on soil with different tillage, stream shocking to showcase the fishery of the creek, and a stream rehabilitation project. Attendees also had access to state experts from the University of Wisconsin-Madison Division of Extension (UW-Extension), USDA-NCRS, and others. Producers were also given access to soil compaction kits for from UW-Extension to assess the health of their own agricultural fields.



Attendees at the field day learn more about soil health from experts.  
*Photo courtesy of La Crosse County.*



## Building a Foundation for Conservation in Manitowoc County

County conservation departments across the state offer technical expertise and financial assistance to support Wisconsin residents in addressing conservation needs on their land. Before these practices can be implemented, awareness and education are essential to ensure both understanding and buy-in from the landowners. For Tara Wachowski, Education Coordinator for Manitowoc County Soil and Water Conservation Department, outreach and building relationships is key in the world of conservation. Their office has creatively worked to connect with the community in the Pine Creek Watershed to reduce phosphorus and sediment loads from point and nonpoint sources. The watershed covers approximately 13,409 acres and drains to Lake Michigan.

Their outreach efforts began by sending out a letter introducing the department, watershed, and efforts to reduce phosphorus and sediment. They also included a survey with the letter and received a high response rate. "This helped us learn what's most important to the people who live and work within the watershed, their interest in participating in the project, and how we can best communicate project progress, opportunities and gain regular

feedback from them," said Wachowski. From this starting point, the county tailored their outreach to ensure people received the information and resources they needed to stay informed and get involved.

In May, they hosted a "Fish Fry for Farmers" cookout and had representation from 10 farms in the watershed at the event. "So much can be accomplished by sharing a meal and ideas," said Wachowski. At the event, farmers were able to discuss their current practices and challenges. Manitowoc County Resource Conservationists Cheyenne Behnke and Laura Paletta gave a presentation that detailed their 9-Key Element Plan, opportunities for funding, and ideas for working together to implement conservation practices into the watershed.

After the fish fry, they followed up with flyers recapping funding opportunities and started making farm and field visits to meet with landowners to discuss and design practices. "We learned that we needed a designated place to send people to easily get information," said Behnke. They began researching how other counties provided information and decided to create



Water and sediment control basin installed in a field in the Pine Creek Watershed.  
*Photo courtesy of Manitowoc County.*



a website to showcase the opportunities and successes happening in the Pink Creek watershed. The website allows the department to reach a wide variety of audiences, from homeowners to farmers. It provides background information on watersheds, clean water, and soil health. In addition to providing information, the website offers a way to visualize the successes and challenges in the watershed through an interactive story map.

Behnke and Wachowski emphasized the importance of sharing these successes with the larger community. "It's so great to hear from people other than farmers who notice and are thankful for the practices that are put in to help their lakes," said Wachowski. About 30 signs have been installed in fields where farmers are planting cover crops, and the department developed interactive Cover Crop Tour Maps in 2020 and 2021. These maps follow more than 20 local producers and feature a combination of interviews, videos, and photos that detail each producer's journey with cover crops. "These signs and maps create awareness that cover crops are a great and viable conservation practice, which also encourages other farms who are on the fence to try it for themselves," added Behnke.

Through a combination of creative in-person and digital outreach efforts, Manitowoc County was also able to help farmers in the Pine Creek watershed construct some in-field practices. In 2021, they worked with farmers to install five grassed waterways and one water and sediment control basin.

The county plans to continue to build upon the foundation they have established to continue these efforts and encourage even more watershed residents to get involved. This summer, they hope to kick off more engagement through an informal field day at one of the locations that installed a water and sediment control basin. The field day will help celebrate and build upon this past success.



Former Fond du Lac County Agronomist Becky Wagner and Dairy Farmer Tim Wettstein inspect a pasture recently interseeded with alfalfa for signs of germination and growth. Photo courtesy of Fond du Lac County.



## Gaining Grazing Acres in Portage County

Many producers across Wisconsin develop grazing plans for their land every year. When implemented, the plans help protect thousands of acres in the state from erosion, reduce runoff, and improve soil health.

In Portage County, increasing the number of grazing acres is a main priority. Although adoption of these practices has been somewhat slow, farmers in the area are taking notice and taking action.

In 2021, the Portage County Land and Water Conservation Division worked with two beef producers – Jason Disher and Jeffery Lutz – to convert more than 50 acres of row crops into grass-based rotational grazing. Through an interagency partnership with USDA-NRCS and Golden Sands Resource Conservation & Development (RC&D), the producers worked to develop their grazing plans, and reached out to Portage County to request funding and assistance to implement those plans. Both projects were cost-shared through the DATCP soil and water resource management program funding to install fencing and watering systems and seeding on the converted acres.

Collaborating with the landowners was one of the most rewarding aspects of the project for Portage County Conservation Technician Tracy Arnold.

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*"It was so great to work with the landowners and to end up with a completed project that reflected their vision for their property and conserved resources along the way," she said.*

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Steve Bradley, Portage County Conservationist, says the benefits of rotational grazing are two-fold for the county. The first benefit is the reduction in runoff. "Both of these farms had surface water benefits for reducing phosphorus entering surface water," said Bradley. One farm eventually delivered to the Wisconsin River Watershed, while the other went to Lake Emily in the Waupaca Watershed.

Bradley also pointed out that Portage County has sandy soils, which means these conversions are beneficial in reducing the nitrates going into groundwater. "Row crops require nitrogen fertilizer, so transitioning those into a grass-based grazing system that doesn't need those fertilizers is an important additional benefit," he added.

Other counties in the area are also prioritizing grazing and are lending a hand when it comes to sharing their knowledge and advice to their neighbors. "Marathon County has a successful farmer network, and they've been fantastic in getting information about pasture walks or other events to our interested farmers," said Bradley.

Portage County hopes to see both of these farmers expand their grazing acreage of their existing farms. "We're always trying to promote grass-based rotational grazing, and we encourage anyone who is interested to reach out," added Bradley.



A section of Jason Disher's grazing project.  
Photo courtesy of Portage County.



## From Collapsing Banks to New Blooms: Restoring Polk Springs in Washington County

Washington County is not known for its trout streams, with only one stream being listed on the DNR's trout stream map. Now, a nearly five-mile long stream called Polk Springs has the potential to double that number. This spring-fed stream has water temperatures that are adequate for trout to live in, but runoff from nearby farms prevented any chance of the trout returning to the stream. Over the last 25 years, Washington County Land Resources Division has partnered with the farmers along Polk Springs on a variety of projects to improve manure management and reduce runoff. The farmers developed nutrient management plans, abandoned unused manure storage, and

addressed sources of runoff from barnyards. Additional projects established grassed waterways and buffers on the stream.

Even with these successful projects, Washington County Conservation Specialist Paul Backhaus says one big goal for their office was repairing the streambank erosion that was putting about 132 tons of sediment into Polk Springs every year. "The landowners along the stream understood the problem but they had a hard time justifying the large expense of fixing the stream," said Paul Backhaus. "Eventually, we realized the only way this project would ever be completed was to find a

way to cover 100% of the project costs." Fortunately, Washington County had access to a newer source of grant funds with the Fund for Lake Michigan, and when combined with an USDA-NRCS Environmental Quality Incentive Program grant, could cover all of the project costs. With the potential to fully cover all of the project's costs, Washington County reached out to the landowners along the stream and asked them partner on the project. This partnership included four landowners and restored more than 2,300 feet of stream.

Before



After



Stream restoration work along Polk Springs stabilized the streambank which will reduce the amount of sediment entering the stream each year. Photos courtesy of Washington County



With the landowners on board, Washington County worked with their local DATCP engineering staff to inventory the project area and develop a design to repair the erosion. At the same time, they worked with DNR fish and stream biologists to inventory the stream and provide input on how to improve the stream for fish habitat. At the end of the DNR's inventory, it was determined that the stream could sustain a population of brown trout. The final design included sloping the undercut banks so they could be planted with grass and placing rock rip-rap on the stream bends that are more susceptible to erosion. Part of the project also required the removal of a combination of dead ash trees and box elders to allow for access to the project area. At the request of one of the landowners, Washington County worked with a local nursery to develop a restoration plan to plant native trees and shrubs that thrive along streams.

Over the course of two summers and countless trips to the project site by Washington County and DATCP staff, the contractor removed the trees, shaped the banks, placed the rip-rap, planted seeds, and installed erosion matting. "As the seed came out of the ground, you could see the transformation of a stream that had collapsing banks into a park-like setting that people and wildlife can access and enjoy," said Backhaus. Over time, this area along the stream will continue to improve both in appeal and function as the native trees and shrubs continue to flourish and grow.

Sometimes good conservation takes time, and in the case of Polk Springs, it has taken more than 25 years. "There is still plenty of work to be completed on Polk Springs," said Backhaus. "But, we passed a major milestone in 2021 by reducing the 132 tons of sediment entering the stream every year." The next big milestone for the comeback of Polk Springs includes the stocking of trout.



Cover crop in corn in Shawano County.  
*Photo courtesy of Maranda Miller, University of Wisconsin Division of Extension*

## Flexible Approaches Benefit Landowners and Farmland Preservation Efforts

In Wisconsin, participation in the Farmland Preservation (FP) Program is an important way for landowners to protect land for agricultural land use while ensuring the health of the state's soil and water resources. Around the state, groups of landowners and local governments have petitioned to form Agricultural Enterprise Areas (AEA). AEAs highlight the value of a specific agricultural community for Wisconsin's agricultural future.

One element of an AEA is to promote the goals of the designated area, which include protection of farmland and conservation of soil and water resources. Innovative communication, education, and outreach methods have always been important to conservation efforts and for encouraging landowners within an AEA to sign a farmland preservation agreement. The farmland preservation agreement is a benefit to these landowners that provides additional tax benefits in exchange for keeping land in agricultural use and meeting conservation standards.

Communities with designated AEAs strive for creative and flexible opportunity to share information with eligible landowners about the program. During 2020 and 2021, a grant opportunity through the state's soil and water resource management program offered these counties an opportunity to create a custom incentive to fit the needs of their AEA community. Through successful grant applications, seven counties, including Ashland, Columbia, Dodge, Langlade, Marathon, Monroe, and Sauk, incentivized, educated, and informed landowners about agricultural land, soil, and water conservation practices with a focus on designated AEAs.

With the flexible nature of the grants, each county was able to make a custom program to fit their community and blend with other initiatives. Ashland County identified a goal to promote nutrient management. In addition to creating an incentive program within the Fields, Waters, and Woods AEA, the county partnered with Douglas, Iron, and Bayfield counties to apply for an National Association of Conservation Districts grant to fund an agronomy technician to get nutrient management on the ground, an essential step in establishing eligibility for the FP program. Dodge County, which is home to six designated AEAs, focused its innovation programming on the Town of Westford AEA. The program targeted pollution

reductions in the Beaver Dam Lake area and rewarded landowners who make a long-term commitment to water quality practices through farmland preservation agreements. Langlade County's strategy focused on targeting landowners already familiar with the farmland preservation program. From these initial contacts, interest grew through word of mouth.

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*"The flexibility that we were granted in implementing the program was absolutely fantastic and let us figure out what we think will work best."*  
Chris Arrowood, Langlade County Conservationist

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The flexibility of the program also helped address barriers to the farmland preservation program. Sauk County was able to connect with all landowners in the Bear Creek AEA through the use of multiple avenues of communication. Improved lines of communication in Columbia County also led to great results as local enthusiasm led landowners to connect with the county conservation office. Marathon County's informational landowner dinner drew nearly 100 people, leading to many new contacts between the county and the landowners.

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*"This incentive has people calling us saying 'how do I qualify for that?' To me that is the difference in a lot of programs. The ones that really get people thinking about how they can do better and how they can participate for next year – those are the good ones."*  
Chris Arnold, Columbia County conservation specialist.

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For other landowners, the cost of developing a nutrient management plan is a barrier to participation in the farmland preservation program. In Monroe County, an incentive provided through the local program improved the financial benefit of developing the plan. With this incentive, it made the cost of developing a plan more affordable.



*"Whatever farmers do out there, it has to make economic sense, whether they have a conservation ethic or not. Offering an incentive, knowing that they will have to hire a consultant for NM or implement a conservation practice... improved our success."*

*Bob Micheel, Monroe County Conservationist*

With this funding support, the AEAs in these seven counties have seen a 716% increase in the number of farmland preservation agreements signed, and an 826% increase in the number of acres protected over the year preceding grant program implementation. The success of the creative approaches to broaden local interest and further education about conservation and preservation within AEAs shows the potential for further gains in other AEAs and in initiatives that further farmland preservation statewide.



View from above of a two-stage ditch. The two-stage construction allows for greater stability of the channel and reduce nutrient loads in the ditch.

*Photo courtesy of Outagamie County*

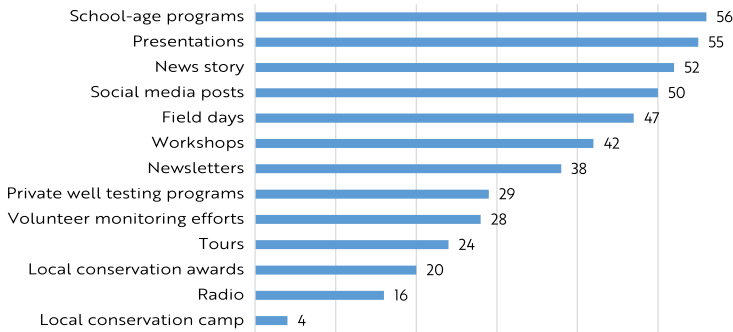


## Sharing Knowledge and Creating Connections for Conservation

The ability to identify a challenge and have the knowledge to address that challenge is critically important to managing natural resources. Conservation professionals across the state spend countless hours each year developing strategies to share information to help others understand the natural world. Through this information sharing, school-age children, rural landowners, farmers, and residents of urban areas can learn and take steps to achieve conservation goals – whether on their own property or by participating in a larger effort.

In 2021, public health precautions were still in place in many locations, making person-to-person outreach more challenging. However, conservation professionals used other opportunities to share information and encourage local action. Below are several stories that highlight efforts to share information and build connections to meet soil and water resource conservation goals.

### Outreach Strategies Used by Counties in 2021.\*



\*As reported in March 2022.

### Adams County: Flipping Over Shoreline Stabilization

When a project goes well, being able to share that success is important. Adams County, in partnership with the Scarlet Huntington Beach Club, came together to complete a project that not only meets resource needs, but also serves to showcase what is possible.

Members of the Scarlet Huntington Beach Club, located on Lake Sherwood, had concerns of severe shoreline erosion and degradation along the beach club's shoreline. The club reached out to the Adams County Land and Water Resource Department (L&W) for help. After surveying the

beach club's property, L&W staff determined that the shoreline erosion was likely due to heavy wave action caused by boating and muskrats burrowing into the shore. To solve the problem and protect the shoreline, L&W developed plans for a project that included three separate Wisconsin Healthy Lakes and Rivers 350 square feet native plantings.

To help members understand the benefits of a healthy shoreline and the recommended plans, L&W staff met multiple times with members of the beach club. During these meetings and site visits, beach club members learned about shoreline stabilization methods and received information about Wisconsin Healthy Lakes and Rivers native plantings. Once project plans were approved, L&W staff, in partnership with beach club members, planted over 1,000 native plant plugs to restore the 300 feet of shoreline.



Planting native plant plugs along Lake Sherwood to stabilize the shoreline.  
*Photos courtesy of Adams County.*

To extend the knowledge of the native plantings on the property, a flip book with pictures of the native plants was put together by L&W staff to help beach club members identify plants. The flip books are being used by beach club members to connect other community members with natives and as fun learning opportunities for children and families. The Scarlet Huntington Beach Club shoreline now serves as a demonstration of a successful shoreline restoration and continues to help mold new relationships.

## St. Croix County: Building Connection through Shared Goal

The Lake Mallalieu Association has been concerned about water quality and sedimentation in its lake for many years. Lake Mallalieu is a part of Willow River watershed, which is 36 square miles and primarily in agricultural land use. The watershed contributes sediment and phosphorus to Lake Mallalieu and eventually to Lake St. Croix, which is considered impaired as a result of phosphorus.

Over the years, county resource management staff have worked with association members to protect shoreland. Despite these efforts, the lake continued to experience nutrient and sediment loading, and sediment deposited at the head of the lake impeded lake navigation. With recognition that much of the sediment and nutrient loading originates upstream, the county worked to coordinate the St. Croix County Water Network (SCCWN). The partnership is focused on improving water quality in Lake St. Croix.

The SCCWN brought together Lake Mallalieu residents and farmer members of the Dry Run

Watershed Council located upstream in the Willow River watershed. During those interactions, the idea of a Lake to Farm Tour was created. The target audience for the Lake to Farm Tour was Lake Association members and Dry Run Farmer Led Council members. The goal was to build relationships between the two groups and foster communication about what each group is doing to protect and improve water quality.

In mid-September, Lake Mallalieu Association members visited a Dry Run Watershed Council member farm to see how farming practices are used upstream to improve water quality in the lake. The site of the tour was at a council member's no-tilled bean field. Council members discussed the importance of water quality and soil health to their individual operations and how important maintaining soil organic matter is to soil health. The council emphasized the importance of no till practices, cover crops, and field borders for both soil health and water quality. The next day, lake association members hosted the Dry Run Council on a pontoon ride around Lake Mallalieu. During the tour, the association showcased successful shoreline restoration and native grass plantings and highlighted areas of invasive species removal.

Farmer and lake shore owners were very pleased with the event which allowed all stakeholders to suspend judgement and instead concentrate on building relationships and partnerships that support improvement of water quality. Plans are already being formed for another lake tour for the summer of 2022.



Attendees at the Lake to Farm Tour in 2021.  
Photo courtesy of St. Croix County.



## Waupaca County: Prioritizing Conservation Action

Determining the right location for conservation action is critical for improving water quality, especially when limited resources are available. In Waupaca County, the Land and Water Conservation Office developed an approach that helps to prioritize using watershed planning, modeling and targeted mailings.

The county has completed extensive planning within several of the county's watersheds. These watershed plans, called nine key element plans, are critical for receiving funding for conservation practice implementation. As part of these planning efforts, county staff consult the Erosion Vulnerability Assessment for Agricultural Lands (EVAAL) model for the watershed. By using information about topography, soils, rainfall, and land cover, the model is able to help prioritize areas that may be vulnerable to erosion and nutrient loading. These vulnerable areas are often good candidates for conservation practices.

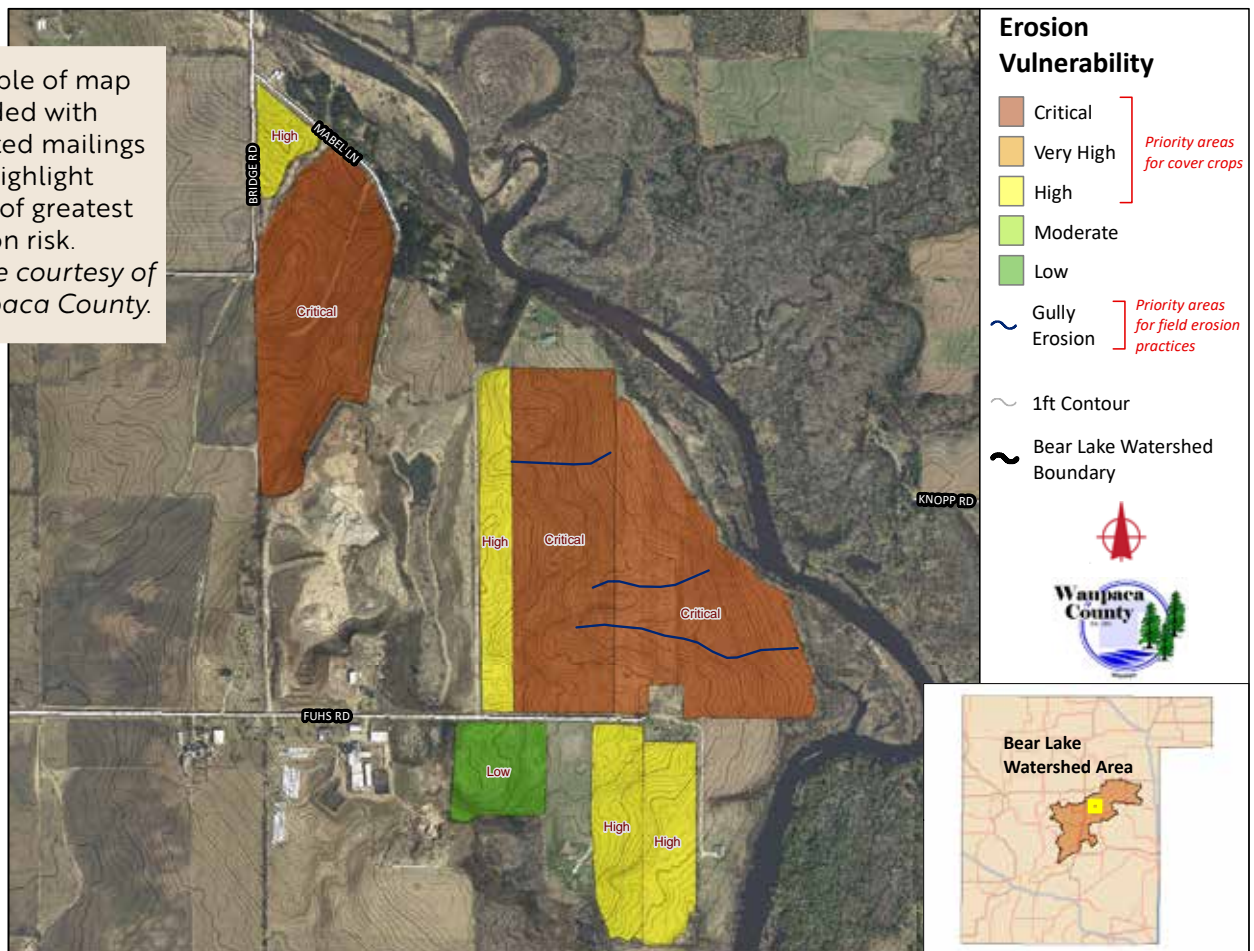
The county then combines information gained from watershed planning and modeling to target

communications to county residents. Targeted mailings help to initiate conversations with landowners with land identified as good candidates for conservation action, which saves time and money while increasing the probability of locating fields with high sediment and nutrient export in the watershed. The mailings include a map that highlights the fields at greatest risk for erosion and provides a recommendation for the type of conservation practice that can help to minimize that risk. The maps, in addition with the mailing, provide a personalized opportunity for landowners to visualize where they can make a difference.

This strategy has proved successful in the past, and the first time this process was used, the county implemented about 2,500 acres of cover crops per year in the watershed. Additional practices installed included several waterways, water and sediment control basins, and harvestable buffers. The county is currently reaching out to landowners in a third nine key element watershed and have already had a great response.

Example of map included with targeted mailings that highlight areas of greatest erosion risk.

*Image courtesy of Waupaca County.*



## Juneau County: Fostering Future Conservation Leaders

Healthy natural resources is dependent on the actions of today and future generations. In Juneau County, the Land and Water Resources Department (LWRD) designed an event to engage with area middle and high school age students and showcase local conservation work.

In April of 2021, the LWRD partnered with the Necedah NGage Academy, a charter school for middle and high school age students, to host an event highlighting local conservation efforts underway in the Wisconsin River Watershed. During the event, a group of 30 students toured the recently completed shoreline restoration project at Wilderness County Park. The project emphasized the negative impact of soil erosion and phosphorus runoff to the quality of surface water in Petenwell Lake. Using a tabletop rainfall simulator, students were shown the impact of rainfall on the watershed.

After the tour, the students became the teachers as they used what they learned from the field day

to hold their own event. Using an Enviroscope model, the group taught 3rd graders from Necedah about nonpoint source pollution and discussed the conservation practices that can prevent runoff.

Through events like this, the LWRD hopes to create a better understanding of the issues that impact the local landscape and the actions students can take to protect and improve the environment.


## Shawano County: Improving Water Quality from Farmland to Shoreland

Water quality has been a growing concern for watershed residents across the Upper Fox and Wolf River. The impact of increased nutrients to waters within the watershed are visible throughout the watershed, including on Shawano Lake. Shawano Lake is the most developed waterbody in the county and is considered to be impaired by the state of Wisconsin as a result of phosphorus contributions.

Partners throughout the watershed are taking significant actions to address sources of nutrients

affecting the quality of the water and the quality of life for those living in the watershed. One major effort was the establishment of the Upper Fox and Wolf Demonstration Farms Network in 2019. This network relies on partnerships and began with USDA-NRCS and the Waupaca County Land and Water Conservation Department. It includes Fond du Lac, Green Lake, Marquette, Outagamie, Portage, Shawano, and Winnebago counties and the Green Lake Association. The mission of the network is to demonstrate that the right combination of traditional conservation practices and other innovative technologies on the landscape can produce viable and sustainable economic and environmental benefits.

One critical aspect of the work accomplished by the network is to create opportunities to share information and foster conservation action in the watershed. Within Shawano County, numerous shoreland restoration projects have been completed. These projects showcase how efforts by shoreline owners can reduce their contributions of phosphorus. Through this education, the county hopes to encourage other



*Students from the NGage Aceademy teach third graders about actions to prevent runoff using an Enviroscope model. Photo courtesy of Juneau County.*



shoreline owners to address conservation issues on their property. In 2021, a field day hosted in June created an opportunity to further other conservation activities upstream of Shawano Lake. The field day highlighted the efforts of two farmers in the watershed to protect water quality and improve soil health.

The field day began at Tauchen Harmony Valley, one of the member farms in the Demonstration Farms Network. The Tauchens are using no-till, interseeding, and grazing to increase their soil health, increase infiltration, and decrease large run-off events. Participants then traveled to the Muellers farm in the Shawano Lake watershed. The Muellers use grazing techniques to ensure their dairy cows are happy and healthy. Grazing also adds the benefit of continual ground cover to help slow down and stop any large run-off events.

The invitation for the field day was shared widely with all watershed residents, from farmers to lakeshore owners. The hope was to provide a forum for connection between farmers and the broader community and serve as an opportunity to foster a collaborative approach to protecting water quality. Throughout the day, participants were able to learn

more about conservation practices and how they can protect soil and water resources, ultimately reducing phosphorus in the watershed's waterways.

## Polk County: Recognizing Stewards of Land and Water Resources

The Polk County Land and Water Resources Department has always been thankful for the commitment of local citizens to conservation efforts around the county. In 2021, the county decided to create a formal opportunity to say thank you through the annual Polk County Land and Water Resources Stewardship Awards.

The recently established stewardship awards are presented to a person or a group of people that have dedicated a tremendous amount of time and effort to the improvement and protection of soil and water resources in Polk County.

The first awards were presented in December 2021. The Horse Creek Area Watershed Council received the land stewardship award for their dedication towards promoting and implementing agriculture best management practices within the community and beyond. Their influence

Attendees of the tour hear first-hand from Steve and Greg Tauchen about actions to achieve their conservation goals.

*Photo courtesy of Maranda Miller, University of Wisconsin– Division of Extension*



has been broad, reaching agriculture producers throughout the states of Wisconsin and Minnesota. Council members who received the award are Brad Johnson, Timm Johnson, Craig Gustafson, Neil Gustafson, Richard Nelson, and Scott Carlson.

Karen Engelbretson received the water stewardship award for her outstanding work with the Bone Lake Management District, Polk County Association of Lakes and Rivers, and statewide lake stewardship efforts. Her work has furthered a wide range of efforts, including shoreline restoration, invasive species prevention, aquatic and native plant awareness, wildlife protection, and habitat restoration.

Through the award program, the county is able to say thank you while raising awareness of the contributions of these dedicated county residents to the health of the county's natural resources. By recognizing the leadership of the award recipients, others may be encouraged to engage in conservation efforts to improve soil and water resources.

Recipients of the 2021 Land and Water Resources Stewardship Awards. Pictured left to right Dane Christenson (Polk Co. LWRD), Eric Wojchik (Polk Co. LWRD), Brad Johnson, Timm Johnson, Craig Gustafson, Karen Engelbretson and Katelin Anderson (Polk Co. LWRD).  
*Photo courtesy of Polk County.*





## Planned 2022 Conservation Activities

Based on annual county work plans

### Cropland and Pasture Practices

- 1,410** acres of contour strips and contours
- 55,347** acres of cover crops
- 22,515** acres of no-till
- 60** counties will help review and revise nutrient management plans
- 65** grade stabilization structures
- 37** counties will install over 174 acres of grassed waterways
- 7** counties will install animal trails and walkways

### Livestock- related practices

- 61** manure storage facilities
- 101** manure storage closures
- 73,000** feet of livestock fencing (13.8 miles)
- 2,000** feet of clean water diversions
- 23** barnyard runoff control systems
- 19** watering facilities
- 19** roof runoff systems
- 7** feed storage runoff control systems
- 17** milkhouse waste treatment practices
- 6** roofs
- 24** counties will develop grazing plans
- 20** counties will install stream crossings, access roads, and various livestock practices

### Other water quality practices

- 185** well abandonments
- 62,738** feet of shoreline protection (44 counties and over 11.9 miles)
- 39.6** acres of critical area stabilization
- 463.2** acres of riparian buffers

### Conservation site visits and inspections planned

- 2,875** farmland preservation conservation site visits
- 1,482** visits to determine compliance with state standards under NR151
- 491** county animal waste permit inspections
- 110** livestock facility siting permit inspections
- 2,135** stormwater and construction site erosion control permit inspections
- 1,139** non-metallic mining permit inspections

### Other conservation activities planned

- 68** counties are involved in watershed projects
- 43** counties are involved in urban issues

### *Water quality monitoring*

**23** Counties are involved in lake and/or stream monitoring

**26** Counties have a groundwater monitoring/testing program

### *Invasive Species*

**41** counties conduct invasive species surveys

**46** counties are involved in education

**42** counties involved in control programs

### *Forestry and Wetlands*

**48** counties engage in forestry-related work

**27** counties will install wetland restoration projects



## Conservation Practices Installed in 2021 with State Funding

Conservation Practices		Practices Installed		
		Acres	Feet	Number
Soil Erosion Control	CREP Equivalent	7		
	Animal Trails and walkways		1,762	
	Cover and green manure crop	7,595		
	Critical area stabilization			32
	Diversions		5,724	
	Field windbreaks		33,632	
	Grade stabilization structures			43
	Riparian buffers	0.15		
	Sinkhole treatment			2
	Streambank crossing		2,708	
	Streambank and shoreline protection		18,770	
	Subsurface drains			24
	Terrace systems		4,565	
	Underground outlet			13
	Water and sediment control basins			13
	Waterway systems	106		
Manure Management	Manure storage closure			49
	Manure storage systems			4
	Access roads		4,933	
	Barnyard runoff control systems			3
	Livestock fencing		76,187	
	Livestock watering facilities			24
	Milking center waste control system			1
	Nutrient management	43,003		
	Residue management	1,643		
	Roof runoff systems			12
	Roofs			1
	Waste transfer systems			7
Other Practices	Prescribed grazing; permanent fencing		101,394	
			334,994	
	Prescribed grazing; est permanent pasture	349		
	Well decommissioning			111
	Wetland development or restoration	13		
	Feed storage runoff control systems			1

*Table 2: Agricultural Best Management Practices Installed in Calendar Year 2021, WI DNR*

Best Management Practice	Installed Amount	Units
Barnyard Runoff Control Systems	2	Number
Cover and Green Manure Crop	885	Acres
Feed Storage Runoff Control Systems	2	Number
Grade Stabilization	1	Number
Manure Storage System Closure	1	Number
Manure Storage Systems	3	Number
Residue Management	5,416	Acres
Roofs	1	Number
Streambank/Shoreline Rip-rapping/Shaping & Seeding (incl. associated fencing)	1,545	Feet
Streambank/Shoreline Shaping & Seeding (incl. assoc fencing)	185	Feet
Waste Transfer Systems	1	Number
Water and Sediment Control Basins	3	Number

*Table 3: Urban Best Management Practices Installed in Calendar Year 2021, WI DNR*

Best Management Practice	Installed Amount
Street Sweeping	2
Urban Infiltration System	3
Urban Stormwater/Erosion Plan	3







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*Division of Agricultural Resource Management / Bureau of Land and Water Resources*  
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*Bureau of Watershed Management*  
101 S. Webster St., WT/3, Madison, WI 53703  
(608) 264-6261 <https://dnr.wi.gov>