2023 Wisconsin Report on Soil and Water Conservation

Wisconsin Department of Agriculture, Trade and Consumer Protection
Division of Agricultural Resource Management
Bureau of Land Water Resources
2811 Agriculture Drive
PO Box 8911
Madison, WI 53708-8911
(608) 224-4620
https://datcp.wi.gov

Wisconsin Department of Natural Resources
Bureau of Watershed Management
101 S. Webster St.
WT/3, Madison, WI 53703
https://dnr.wi.gov

Acknowledgements

Land and Water Conservation Board members (during 2023)

- Mark Cupp (Chair)
- Bobbie Webster (Vice-Chair)
- Monte Osterman (Secretary)
- Ron Grasshoff
- Andrew Buttles
- Rebecca Clarke
- Thoman Mandli
- Brian McGraw
- Jill Schoen
- Andrew Potts
- Robby Personette

Advisors to the Land and Water Conservation Board (during 2023)

- Ian Krauss
- Eric Allness
- Dr. Francisco Arriaga
- Amber Radatz
- Matt Krueger

Agency Contacts

- DATCP - Coreen Fallat and Alex Elias
- DNR - Kari Gesch and Ben Uvaas

Cover image:
Attendees at Conservation Observance saw a grazing demonstration on land managed by the Schoepp family.

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Students judging a soil pit in Buffalo County. Sixty-one students from seven schools participated in the event in 2023. Photo courtesy of Buffalo County.

Learning in the field about composting deadstock. Photo courtesy of Green County.

Dam installation in Vernon County to protect field. Photo courtesy of Vernon County.

Nearly 90 students from West Bend High School attended an educational event in conjunction with a field day organized by the Cedar Creek Farmers. Stations included this rainfall simulator.

Inter-seeding trials at the cover crop demonstration plot. Photo courtesy of Clark County.

Learning in the Field at the Kenosha County Regenerative Producers field day during June 2023. Photo courtesy Laura Buska, Root-Pike WIN.

Introduction

In Wisconsin, we are fortunate to have a variety of natural resources that support many industries and offer benefits to residents and visitors. We 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 the quality of our natural resources mirrors the quality of life for residents.

The 2023 Soil and Water Conservation Report provides an overview of conservation efforts and accomplishments throughout all 72 counties, many of which were completed with state assistance provided through the Joint Allocation Plan. The plan is developed through the collaboration of the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) and the Department of Natural Resources (DNR) and allocates funds provided by the state budget to support soil and water resource management activities under the provisions of Chapter 92 and 281 Wisconsin Statutes.

DATCP allocates grants to county land conservation committees and other project cooperators through the Soil and Water Resource Management Program (SWRM). These grant funds are used to help fund county soil and water conservation staff and support expenditures, as well as landowner conservation projects. DNR allocates grants to counties through the Targeted Runoff Management (TRM), the NR 243 Notice of Discharge (NOD), and Urban Nonpoint Source and Storm Water Management Construction Projects (UNPS Construction) Grant programs. For 2023, a total of $22,357,043 was allocated based on the state budget for the 2021-23 biennium. DATCP awarded $18,650,741 and DNR awarded $3,706,302.

The report highlights the benefit of persistent conservation efforts over generations and the value of collaboration to achieve conservation goals. The report showcases the value of hands-on learning, paired with peer-to-peer discussion to foster adoption of new techniques. It highlights how achieving success with projects of all scale is possible.

Excited cows head toward a cover crop field during a grazing demonstration for Conservation Observance Day.

Conservation Funding in Wisconsin in 2023

$9.7 million in state funding to cost- share agricultural and urban conservation practices and support farmer education for nutrient management and innovative local projects.

$11.7 million in state funding available for local conservation staff and support.

$950,000 in state funding used to support necessary training and the development of conservation tools and standards.

State Funding Through Allocation Plan

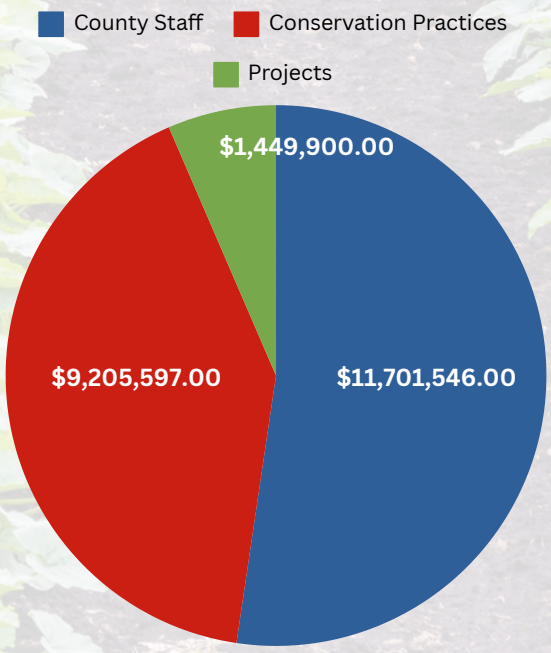


Table 1: 2023 DATCP Allocations by County

County	Allocation	County	Allocation	County	Allocation
Adams	$256,693	Iowa	$383,167	Polk	$211,239
Ashland	$232,842	Iron	$177,356	Portage	$240,735
Barron	$188,131	Jackson	$261,002	Price	$146,314
Bayfield	$199,926	Jefferson	$184,930	Racine	$377,454
Brown	$250,710	Juneau	$210,580	Richland	$197,273
Buffalo	$195,755	Kenosha	$178,997	Rock	$320,890
Burnett	$175,659	Kewaunee	$283,302	Rusk	$188,473
Calumet	$267,782	La Crosse	$246,602	St. Croix	$344,712
Chippewa	$342,731	Lafayette	$181,478	Sauk	$261,001
Clark	$261,789	Langlade	$154,219	Sawyer	$141,855
Columbia	$289,920	Lincoln	$154,253	Shawano	$215,637
Crawford	$200,818	Manitowoc	$330,194	Sheboygan	$230,955
Dane	$429,461	Marathon	$334,188	Taylor	$253,553
Dodge	$240,295	Marinette	$300,020	Trempealeau	$223,024
Door	$209,171	Marquette	$277,939	Vernon	$295,994
Douglas	$169,888	Menominee	$115,087	Vilas	$177,883
Dunn	$267,041	Milwaukee	$77,970	Walworth	$264,764
Eau Claire	$279,873	Monroe	$265,919	Washburn	$180,070
Florence	$110,554	Oconto	$218,230	Washington	$315,225
Fond du Lac	$246,197	Oneida	$168,010	Waukesha	$241,933
Forest	$148,387	Outagamie	$339,102	Waupaca	$309,042
Grant	$199,865	Ozaukee	$269,555	Waushara	$246,851
Green	$257,975	Pepin	$181,216	Winnebago	$297,481
Green Lake	$271,649	Pierce	$248,208	Wood	$283,847

Table 2: 2023 DNR Allocations

County	Allocation
Marathon	$341,541
Marinette	$225,000
Outagamie	$485,216
Polk	$521,370
Rusk	$464,425
Trempealeau	$218,750
Washington	$225,000
Waupaca	$225,000

Wisconsin Conservation Activities in 2023

The 72 conservation departments across the state work to achieve local and state conservation and natural resource protection objectives. Just as there are variations across the landscape from corn fields to forests, from urban to rural, from the Mississippi River Basin to the Great Lakes Basin, there are variations in the conservation activities of each of the 72 counties.

*Chart 1: 2023 Conservation Activities of Counties, and Top Activities by Time Spent**

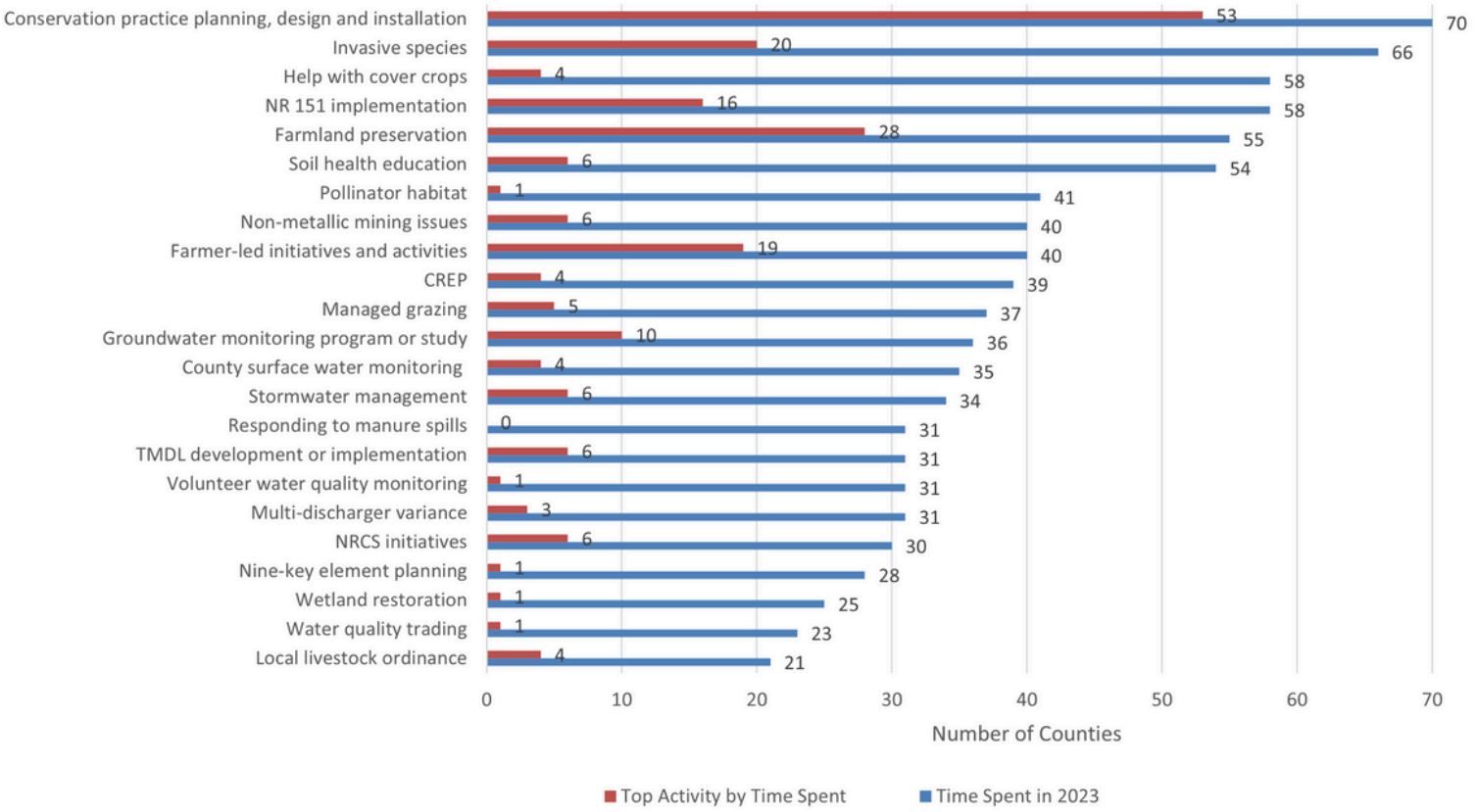


**Chart shows activities that at least 20 counties spent time on in 2023. As reported by counties in March 2024.*

Targeting Conservation

It takes staff time and funding to carry out conservation activities. By considering factors such as resource health, existing plans, and stakeholder engagement, conservation professionals prioritize available time and funding. The figure below summarizes the top strategies that county conservation departments used to target areas for conservation activities.

*Chart 2: Strategies Used to Target Conservation Activities, 2023**

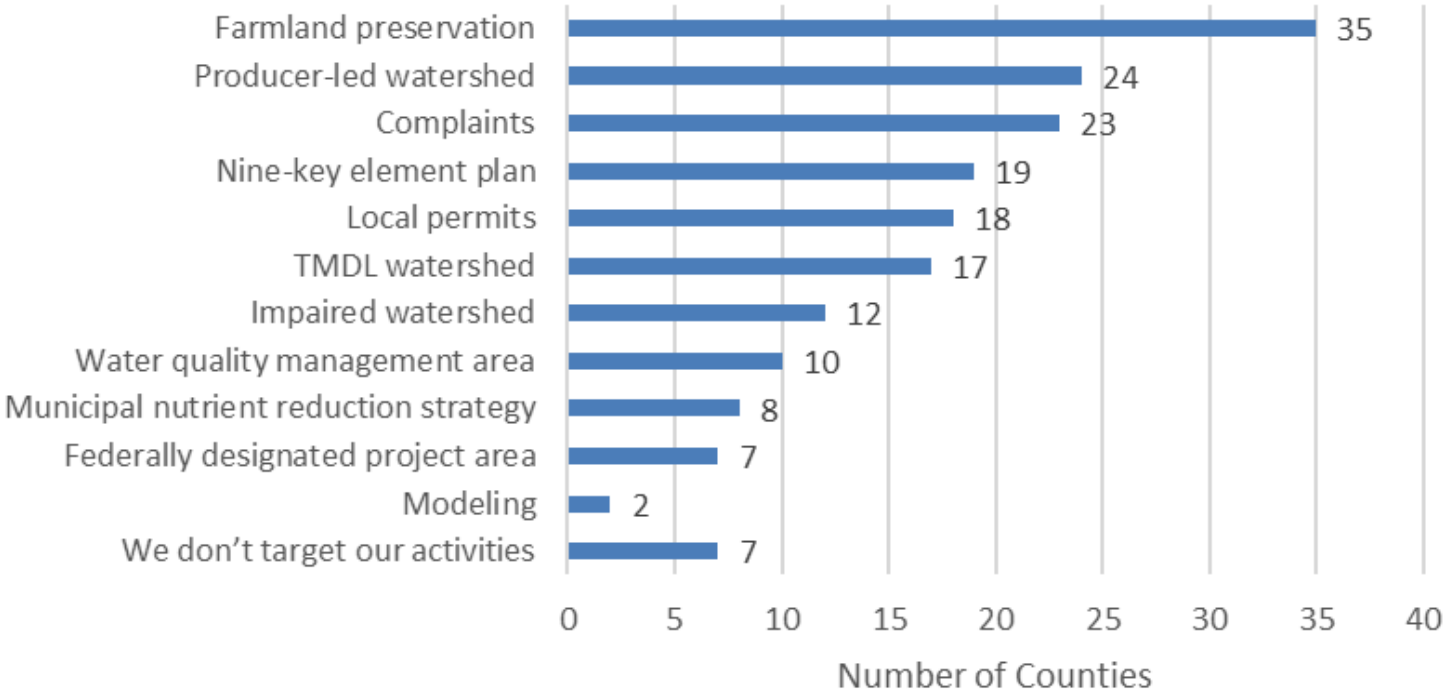
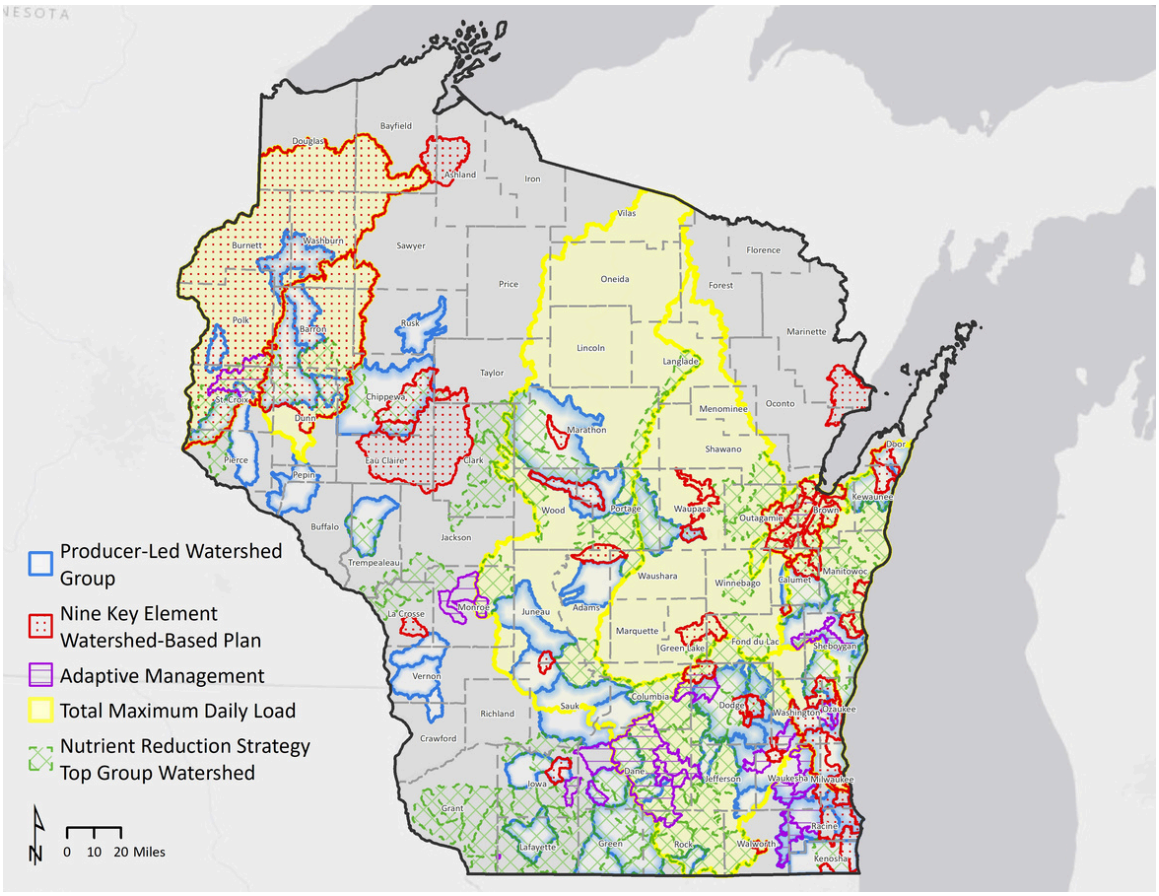


**Chart shows strategies used by counties to target conservation, as reported by counties in March 2024. Additional strategies may also have been used.*

The following map shows the locations of where several of these strategies are being carried out across the state. Conservation work is frequently planned and implemented at the watershed level. By mapping out where these activities are taking place, conservation professionals can make informed decisions to help target implementation of conservation programming.

Map 1: Watershed Conservation Activities, 2023



Site Assessment and Evaluation

On-site assessment and evaluations are important aspects of conservation work. The state established performance standards for agriculture as well as for construction site erosion control and storm water management. By visiting sites in person and assessing the resource needs, conservation professionals can ensure that natural resource protections are in place and the standards are met. In addition, participation in some state conservation programs, such as the Farmland Preservation Program, requires regular evaluation to make sure eligibility is maintained.

*Table 3: Site Assessments and Evaluations, 2023**

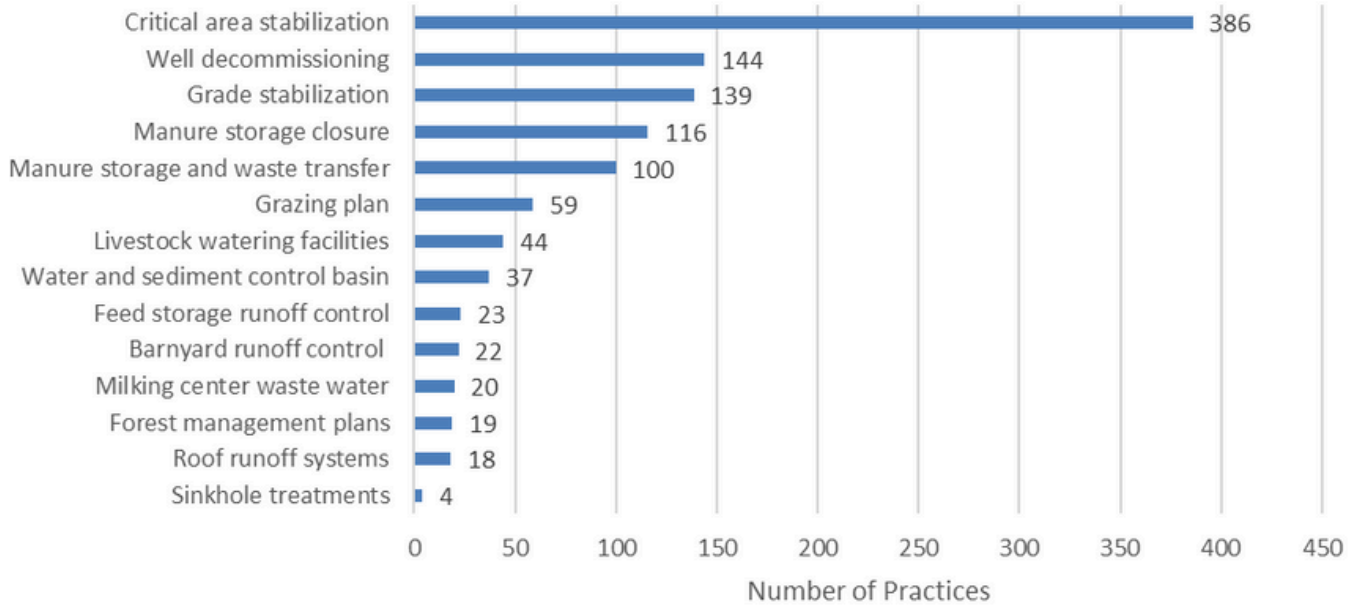
Type of Inspection	Number	Percent in Compliance
NR 151 Compliance Determinations	2,758	88%
Farmland Preservation Inspections	3,758	92%
CREP Easements	79	68%
Other Site Inspections (e.g. stormwater and construction site erosion control, forestry)	4,447	73%

Implementing Practices

Conservation professionals across the state work closely with landowners and farmers to help address identified resource concerns and to meet soil and water conservation goals. The conservation professionals provide necessary technical assistance to identify a solution and then develop a plan and implement the conservation practice. Conservation funding is frequently available to help landowners achieve conservation goals and to reduce nonpoint sources of nutrients and sediment.

Practices by Number

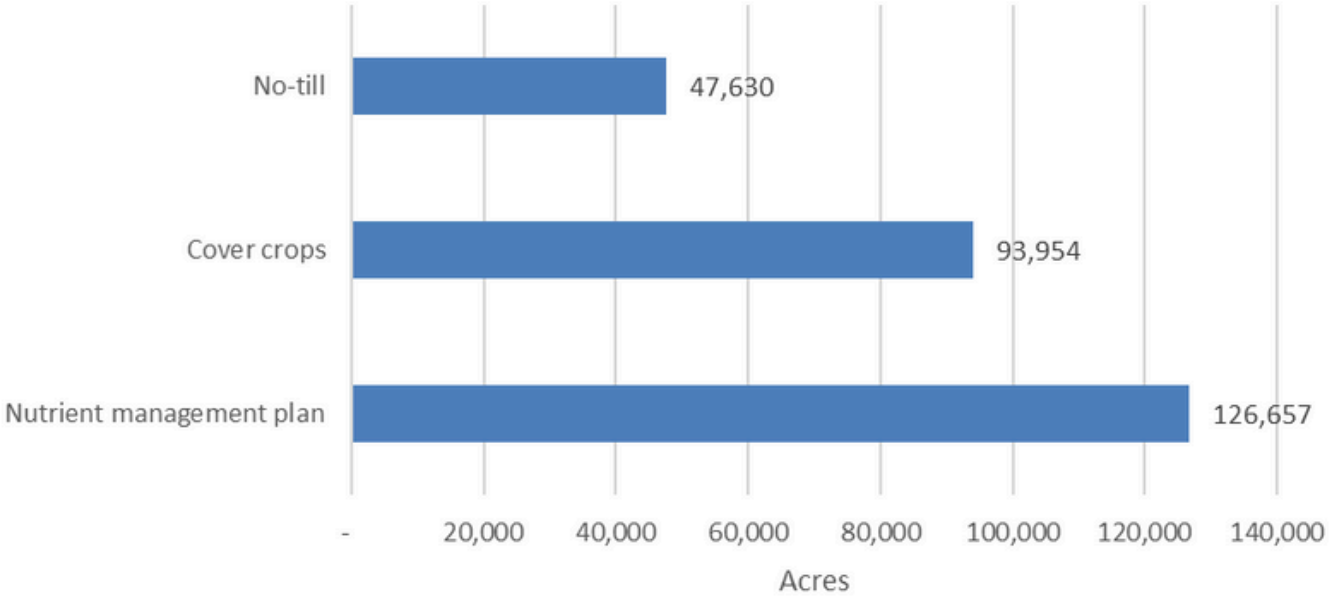
*Chart 3: Conservation Practices Installed in 2023, by Number**



**Installed with county assistance including funding, planning, design, construction, or inspection. As reported in March 2024.*

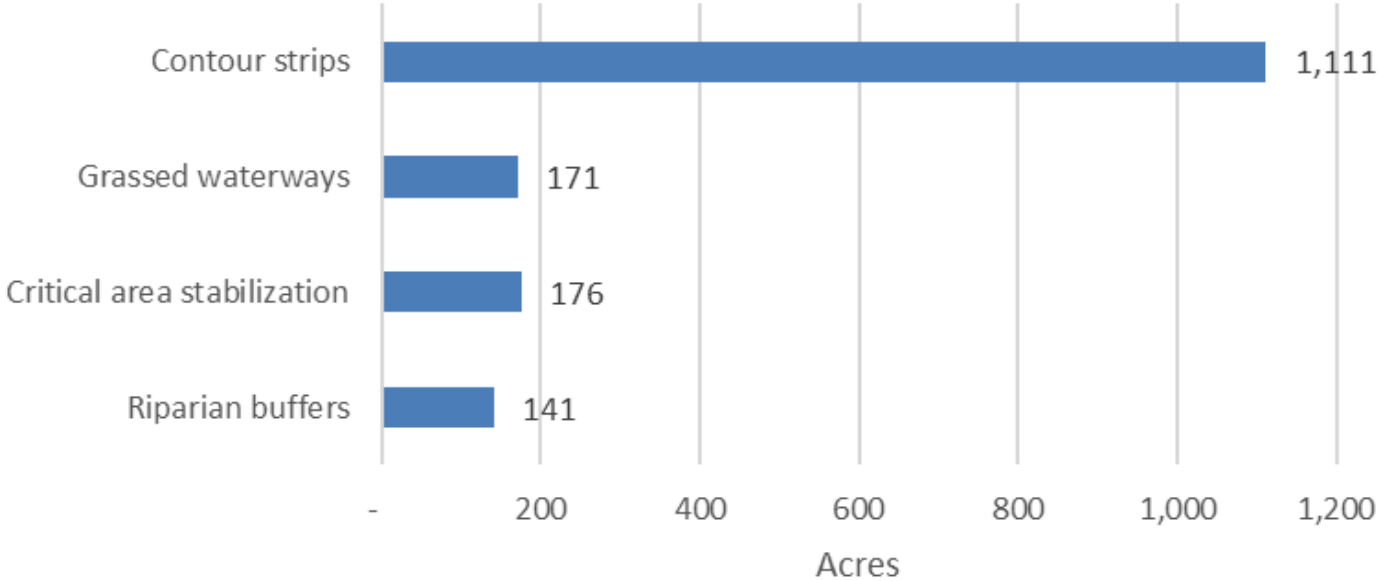
Practices by Acre

*Chart 4: Conservation Practices Installed in 2023, in Acres**



**Installed with county assistance including funding, planning, design, construction, or inspection. As reported in March 2024. Numbers do not include CREP acres.*

*Chart 5: Conservation Practices Installed in 2023, in Acres**



**Installed with county assistance including funding, planning, design, construction, or inspection. As reported in March 2024. Numbers do not include CREP acres.*

Practices by Feet

*Table 4: Conservation Practices Installed in 2023, in feet**

Conservation Practice	Feet
Livestock fencing	406,511
Streambank or shoreline protection	61,797
Trails, access roads, and walkways	50,043
Clean water diversion	6,031
Stream crossings related to livestock	3,332
Stream crossings related to forestry	1,525

**Installed with county assistance including funding, planning, design, construction, or inspection. As reported in March 2024.*

State Supported Practices

The Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) and the Wisconsin Department of Natural Resources (DNR) provide support for conservation practice installation through the Soil and Water Resource Management grant program and the Targeted Resource Management grant program, respectively. The following tables provide a summary of how this state support is used. These practices are included in the numbers reported above.

Table 5: Practices Funded by DATCP, 2023

Conservation Practices		Practices Installed		
		Acres	Feet	Number
Soil Erosion	Animal Trails and Walkways		2,924	
	Cover and Green Manure Crop	17,381.15		
	Critical Area Stabilization			40
	Diversions		4,434	
	Field Windbreaks		21,147	
	Filter Strips	0.004		
	Grade Stabilization Structures			33
	Riparian Buffers	0.25		
	Sinkhole Treatment			2
	Streambank Crossing		5,233	
	Streambank and Shoreline Protection		10,735	
	Subsurface Drains			15
	Terrace Systems		1,200	
	Underground Outlet			33
	Water and Sediment Control Basins			17
	Waterway Systems	166.70		

Conservation Practices		Practices Installed		
		Acres	Feet	Number
Manure	Manure Storage Closure			49
	Manure Storage Systems			8
	Access Roads		16,313	
	Barnyard Runoff Control Systems			7
	Livestock Fencing		113,073	
	Livestock Watering Facilities			22
	Nutrient Management	25,902.44		
	Residue Management	1,016		
	Roof Runoff Systems			15
	Waste Transfer Systems			4
Other Practices	Milking Center Waste Control Systems			1
	Prescribed Grazing; Permanent Fencing		84,583	
	Prescribed Grazing; Best Permanent	265.18		
	Structures for Pesticide Management			1
	Well Decommissioning			89
	Wetland Development or Restoration	5.3		
	Feed Storage Runoff Control Systems			3

Table 6: Practices Funded by DNR, 2023

Agricultural Best Management Practices Installed	Quantity	Units
Access Roads and Cattle Crossings	513	feet
Barnyard Runoff Control Systems	1	
Cover and Green Manure Crop	3,176	acres
Critical Area Stabilization	8	acres
Feed Storage Leachate	3	
Grade Stabilization	12	
Heavy Use Area Protection	1	acre
Manure Storage System Closure	1	
Manure Storage Systems	4	
Milking Center Waste Control Systems	2	
Nutrient Management	1,554	acres
Other Streambank/Shoreline Protection (incl. assoc. fencing)	600	feet
Relocating or Abandoning Animal Feeding Operations	2	
Residue Management	2,169	acres
Riparian Buffers	3	acres
Stream Crossing (incl. associated fencing)	137	feet
Streambank/Shoreline Rip-rapping (incl. assoc. fencing)	495	feet
Streambank/Shoreline Shaping and Seeding (incl. assoc. fencing)	4,523	feet
Subsurface Drains	250	feet
Underground Outlets	1,057	feet
Waste Transfer Systems	4	
Water and Sediment Control Basins	2	
Waterway Systems	8	acres

Urban Best Management Practices Installed	Quantity	Units
Information and Education Program	2	
Other Streambank/Shoreline Protection (incl. assoc. fencing)	1,464	feet
Storm Water/Erosion Control Ordinance	2	
Streambank or Shoreline Protection	1,385	feet
Streambank/Shoreline Rip-rapping (incl. assoc. fencing)	214	feet
Streambank/Shoreline Shaping and Seeding (incl. assoc. fencing)	3,314	feet
Urban Stormwater/Erosion Plan	4	
Wet Detention Pond	2	

Estimated Load Reductions

Nonpoint sources of pollution are the cause of water quality impairment in Wisconsin's water. The DNR estimates that more than 70% of the lakes and streams within assessed watersheds are degraded by nonpoint source pollution.

By implementing conservation practices on the landscape, sources of nonpoint pollution can be reduced, which leads to improvement in the health of our soil and water resources. In many counties, the county staff use computer models to estimate the reductions in phosphorus, nitrogen, and sediment resulting from conservation efforts. The figure below shows the estimated reduction of these pollutants in 2022, as reported by counties in March 2023.

Chart 6: Method to Estimate Reductions as a Result of Conservation Practice Installation, as Reported by Counties in March 2024

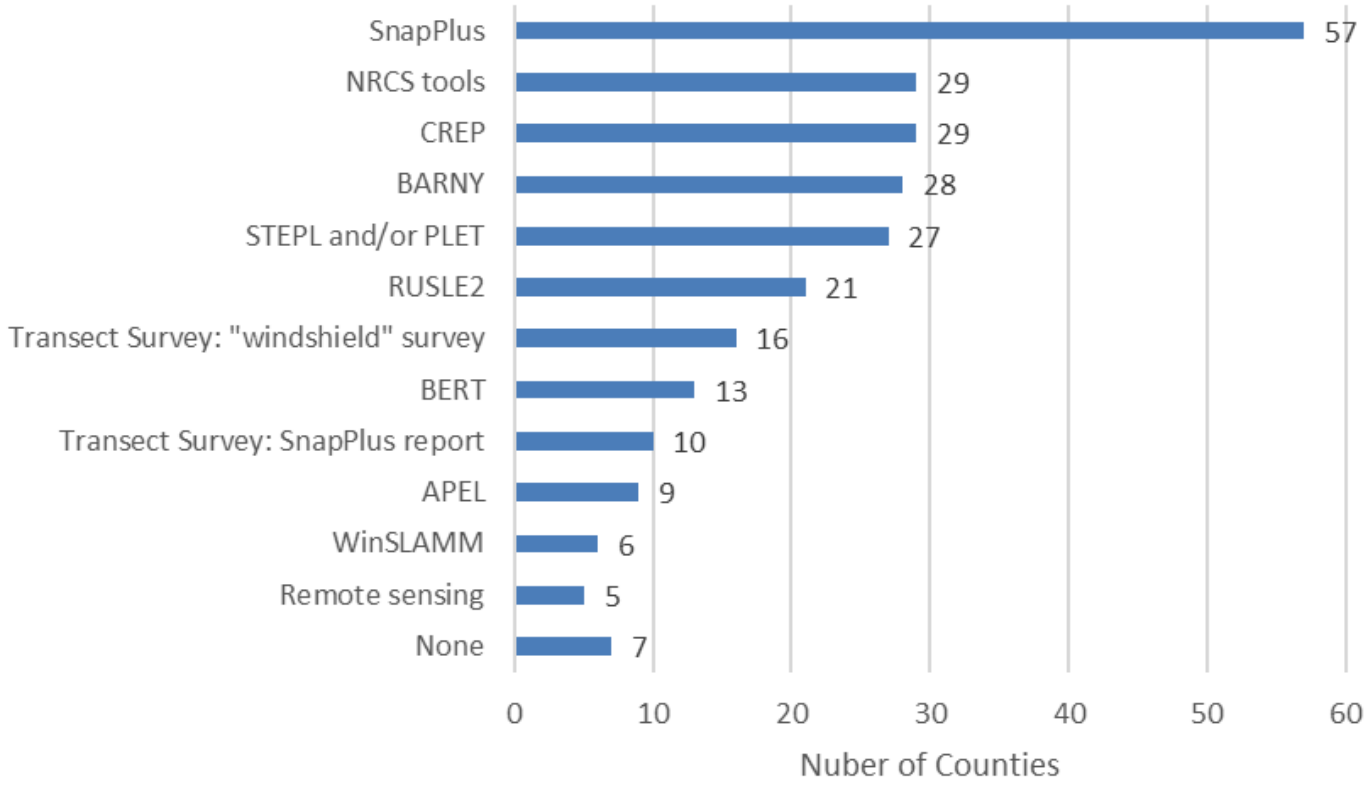
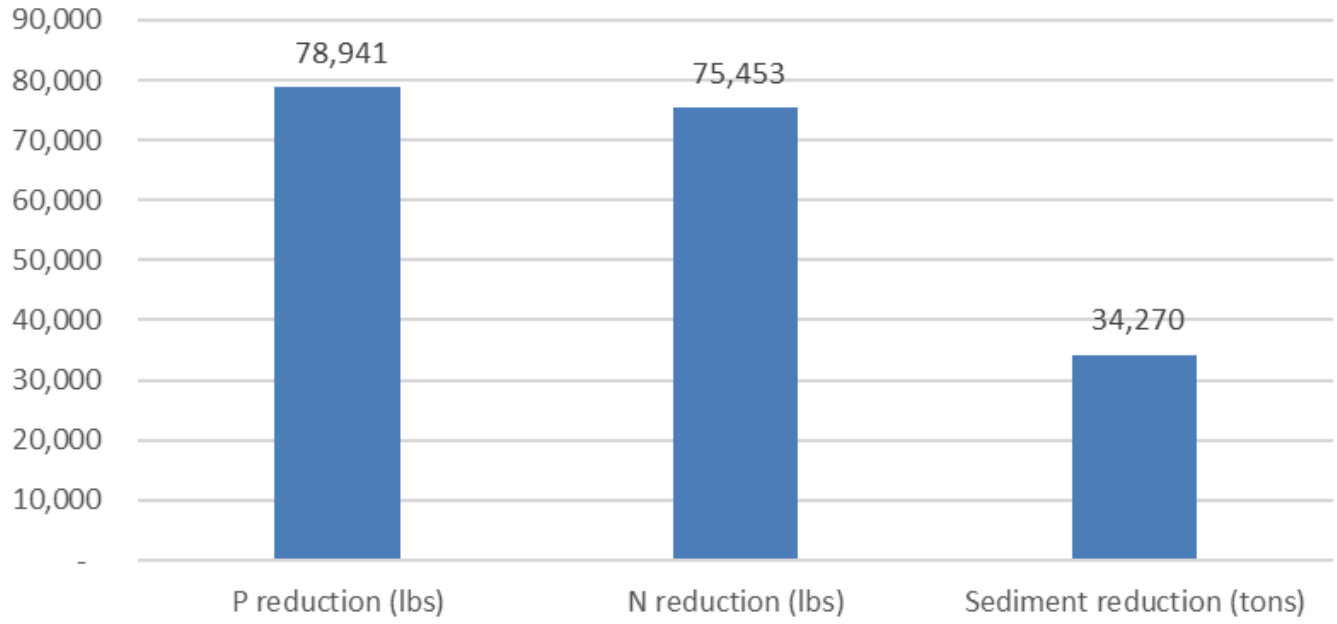


Chart 7: Estimated Reductions as a Result of Conservation Practice Installation, as Reported by Counties in March 2024*



**Not all reductions of phosphorus, nitrogen, and sediment achieved through conservation practices implemented in 2023 are tracked and reported. The numbers shown here capture only the known estimated reductions in 2023 as reported by counties in March 2024. As a result, the numbers shown here are only a fraction of the total reductions in phosphorus, nitrogen, and sediment from conservation efforts in 2023.*

Enforcing Local Regulations

Many counties across the state administer local ordinances that regulate activities that can impact soil and water resources. In some counties, the administration of ordinances, issuing permits, and monitoring and inspection are handled by the county's conservation department. In other counties, these actions are handled by a different county department, often with the assistance of the county conservation department. When permittees are out of compliance, the county works with the permittee to address the issue. In some counties, the county department responsible for the ordinance may take enforcement actions to ensure that resources are protected and permit conditions are met. The information below is specific to the actions of the county conservation departments.

*Table 7: Permits Issued by County Conservation Departments in 2023**

Manure Storage Construction and Transfer Systems	Manure Storage Closure	Livestock Facility Siting	Winter Spreading	Nonmetallic/Frac Sand Mining	Stormwater and Construction Site Erosion Control	Shoreland Zoning
127	118	39	191	350	1,109	893

**As reported by county conservation departments in March 2024. Does not include permits issued by other county departments.*

*Table 8: Ordinance Monitoring and Enforcement Actions for Facilities Permitted Under Manure Storage and Livestock Facility Siting Ordinances, in 2023**

Facilities Inspected for Compliance	Notices of Violation or Similar Issued	Citations or Fines for Violations	Referrals to Corporation Counsel	Notices Resolved
481	26	9	7	23

**As reported by county conservation departments in March 2024.*

Nutrient Management Planning and Education

The 72 conservation departments across the state work to achieve local and state conservation and natural resource protection objectives. Just as there are variations across the landscape from corn fields to forests, from urban to rural, from the Mississippi River Basin to the Great Lakes Basin, there are variations in the conservation activities of each of the 72 counties.

Washington and Waukesha Counties Team Up to Target a New Nutrient Management Audience

Previous nutrient management outreach and training events in southeastern Wisconsin have largely focused on dairy and beef operations. Stephanie Egner of Washington County and Alyssa Vaughan of Waukesha County, along with Jordan Kampa, Southeast Regional Specialist with the UW's Nutrient and Pest Management Program, came together to meet a specific need within their counties - nutrient management for horse owners.

In partnership with DATCP Nutrient Management and Conservation Engineering staff, a workshop was organized specifically oriented to horse owners and teaching them the importance of manure management and storage as well as pasture management. The workshop focused on manure education, from defining what manure is to exploring potential benefits and harms as a result of how manure is managed. In general, the workshop participants did not own their own land to mechanically apply manure to, so other options discussed included composting, hauling manure offsite via dumpsters, and working with other landowners to properly apply manure to land.

Stephanie, Alyssa, and Jordan had a fabulous turn out with 65 attendees from seven counties, though mostly from Waukesha and Washington. This previously had been a non-targeted audience that had never heard of manure management or nutrient management. Their hope is to continue and build off this success with additional education and outreach for horse owners.

DATCP awarded $2,134,100 via SEG cost-share to counties primarily for creating nutrient plans to meet the 2015 Natural Resources Conservation Service (NRCS) 590 Standard. Some of these funds may be used to cost-share (a) cover crops and other cropping practices to implement a NM plan; and (b) for "hard practices", with DATCP approval, if the county's grant contract authorizes such use.

Nutrient Management Plans Reported in 2023

- 7,562 Nutrient Management Plans reported by counties
- 3.66 million acres covered by a Nutrient Management Plan
- 41.8% of Wisconsin's harvestable cropland covered

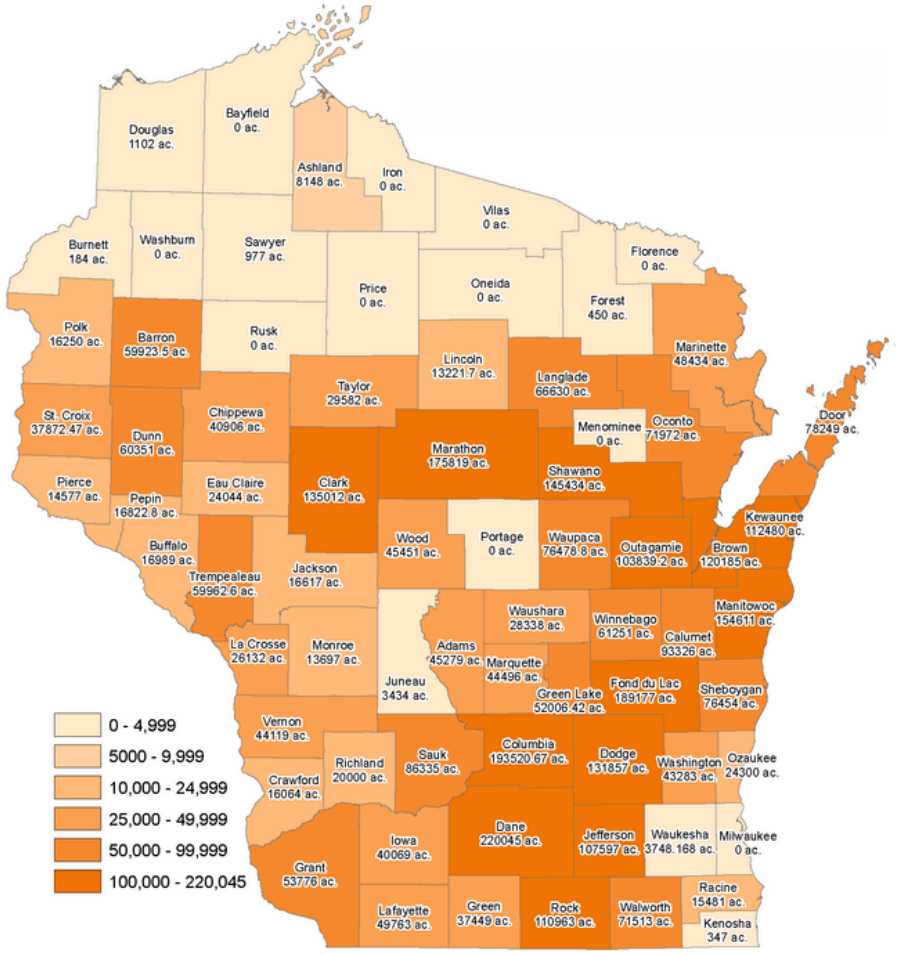
Farmer Developed Plans in 2023

- 1,711 farmers wrote their own plans
- 555,596 acres covered by plans written by farmers
- 23% of all nutrient management plans

Nutrient Management Farmer Education (NMFE) Grants in 2023

- $174,982 awarded through 14 NMFE grants to support programs teaching farmers to develop their own plans

Map 2: Counties with Nutrient Management Plan Acres, 2023



Nutrient Management plan acres reported to DATCP by county land conservation offices.

Managing Ecosystem Health

Most counties engage in efforts to control invasive species. In 2023, 60 counties engaged in aquatic invasive species control activities and 53 counties worked on terrestrial invasive species projects.

Table 9: Aquatic and Terrestrial Invasive Species Control Activities, 2023

Conducted Plant Surveys	45
Developed Management Plans	26
Implemented Control or Eradication Strategies	48
Provided General Informational Materials	62
Conducted Boat Inspections	30

Lincoln County

Lincoln County is working with citizens and partners to slow the spread of invasive species. Through educational outreach, strategic planning, and active management, they are protecting the environment and economy from invasive species. Lincoln County utilized the Lake Monitoring and Protection Network (LMPN) grant from the DNR to hire two Aquatic Invasive Species (AIS) limited term employees in the summer of 2023. The LMPN grant was supplemented with a Clean Boats, Clean Waters (CBCW) grant from the DNR as well. The AIS staff completed a variety of monitoring, control, and education activities regarding AIS.

An annual report of AIS activities completed in Lincoln County is available online at the following link: https://co.lincoln.wi.us/land-services/page/invasive-species. Lincoln County also collaborates with the Wisconsin Headwaters Invasives Partnership (WHIP) to complete terrestrial invasive species work within Lincoln County. WHIP also provides additional AIS support as needed.

Marathon County

Barker-Stewart Island Park, located in downtown Wausau, hosts a popular walking trail used by people that work downtown and families that utilize the River Walk along the Wisconsin River. This park provides a unique opportunity to showcase beneficial shoreland and wildlife conservation practices. Without intervention, this island would slowly succumb to invasive plant species, affecting people's ability to enjoy the space and potentially minimize habitat for local wildlife species. Through a multi-department collaboration and funding through a Lake Protection Grant through the DNR, Marathon County is working to transform and restore space on this island to benefit local habitat.

By removing invasive plant and tree species and replacing them with over 2,000 native plants and 40 different species of shrubs, approximately 6,000 square feet of space alongside eastern side of the island is now restored. The new plant species benefit local and migrating wildlife, are deer resistant, and aggressively out-compete undesired invasives. Interpretive signs educate the public on the importance of the native species for the community and provide visual interest along the trail. Future plans for the island align with the city's comprehensive plan and include restoring an interior area for a prairie demonstration site, adding bird-friendly tree species, and adding a gazebo.

Planting natives at Barker-Stewart Island Park. Photo courtesy of Marathon County.

Protecting and Restoring Streambanks and Shorelines

Forest County: Starting a Trend on Butternut Lake

Wave action along the shore of Butternut Lake led to sloping banks and shoreline erosion. The family of the owners of one site along this 1,250-acre lake in northern Forest County reached out to Forest County Land Conservation Department for help.

Work began to identify the best solution to this resource concern. The county, in partnership with DATCP Conservation Engineering staff, a skilled contractor, and the motivated landowner, agreed on a design and a plan of action.

The project used rock rip rap to protect 110 feet of shoreline. Above the rock rip rap, 200 geotextile bags stabilize the eroded shoreline above the rock. A four-foot-wide buffer of native plantings was the final step in the project. Approximately 500 native plant plugs and shrubs were planted within the planting area and the geotextile bags.

The landowner and family are pleased with the final project, and they aren't the only ones. According to the owner, "the neighbors love it too – maybe we started a trend?"

Protected shoreline using riprap and geotextile bags on Butternut Lake. Photo courtesy of Forest County.

Oneida County

In 2020, the Lake Nokomis Concerned Citizens (LNCC) began an initiative to help preserve the integrity of the shoreline around Lake Nokomis and its connected waters, which include both Bridge and Deer Lakes. Together, these waterbodies create the Rice River Reservoir which has a combined surface area of over 3,600 acres that splits the boundary of Lincoln and Oneida counties. A committee consisting of staff and volunteers from Lincoln County Land Services Department, LNCC, Oneida County Land & Water Conservation Department, and Wisconsin Valley Improvement Company (WVIC), began a "Native Plants for Nokomis" program.

In May of 2022, over 3,000 native plants were distributed to 53 members of the LNCC. These plants were grown by Hanson's Garden Village specifically for this project and contained a mix of groundcovers and shrubs. These plants found their roots along the shoreline of the Rice River Reservoir, and now provide wildlife habitat, erosion control, and natural beauty to the shoreline.

The initiative not only provided plants to landowners, but also gave landowners the knowledge needed to allow the plants to thrive after being planted. Two interactive workshops taught landowners about the native lakeshore plants and how to plant, protect, and care for them. Landowners also received a "Planting Tip Sheet" to answer any further questions they may have had.

All told, the Native Plants for Nokomis program was a multi-year project that strengthened partnerships, provided educational outreach about the importance of native plants and pollinators, and increased native plant buffers throughout the entire Rice River Reservoir. Even more importantly, it became a model program that resource managers continue to promote and advocate for on lakes throughout the Northwoods of Wisconsin.

Native plants awaiting their new home along the Rice River Reservoir. Photo Courtesy of Oneida County.

Sawyer County

Landowners along Lake Chetac in Sawyer County rolled up their sleeves to protect the lake, the shoreline, and their property after a particularly wet summer caused the sloughing of an entire bank into the lake. The shore itself was a steep sandy shoreline undercut by wave action, which led to the unstable situation.

With design in hand, reviewed and approved by DATCP Conservation Engineering staff, the landowners decided to take on some of the labor for to save costs. The design called for riprap along the toe of the slope and the installation of vegetated geobags above the riprap to stabilize the bank. The top of the shoreline was revegetated with trees, shrubs, and forbs. A shoreline preservation agreement with the county ensures the maintenance of the plantings and long-term protection of the shoreline vegetation.

The result of the project is a stable shoreline and long-term planting that are a source of pride for the landowners. They worked hard to complete the project and they know that work is an investment for the future.

Revised Design Offers Increased Water Quality Benefits in Outagamie County

The traditional style of drainage ditches across the Wisconsin landscape are often prone to erosion, channelization, and bank failure due to the high volume and velocity of water during peak flows. These traditional ditches also do little to prevent the flow of nutrients and other contaminants from farm fields to downstream surface water.

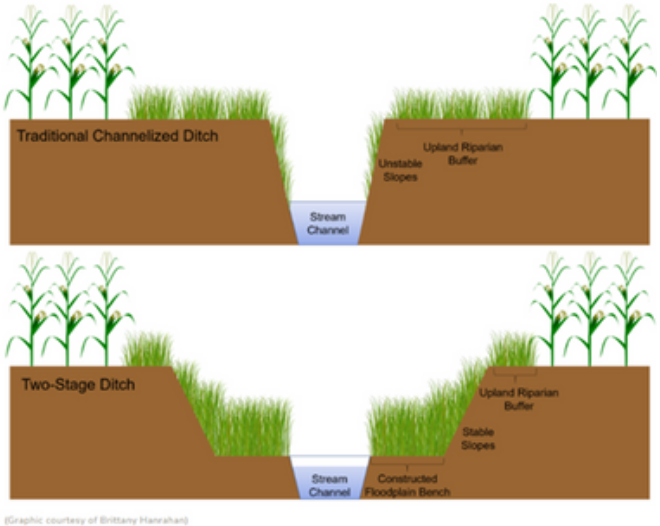
One solution supported by recent research is a change in design to use of a two-stage ditch. This type of ditch can effectively stabilize ditch and stream channels and reduce nutrient loads. A two-stage ditch is a modified drainage ditch that creates both a base flow and flood flow channel within the existing drainage channel's corridor. By adding benches that serve as floodplain for the channel, the vegetated benches reduce the velocity of high flows and retain nutrients and sediment.

The vegetated benches can provide treatment of tile drainage water and include sediment traps in areas prone to sediment deposition. Two-stage ditches can also be designed to improve habitat for wildlife.

Outagamie County Land Conservation Department is implementing a two-stage ditch design in a couple of locations within the Lower Fox Basin to reduce phosphorus and sediment runoff. Two DATCP Conservation Engineering staff reviewed and the designs and assisted with planning, construction inspection, and provided final construction approval. The projects are the result of a collaboration with local and state partners including Fox-Wolf Watershed Alliance, NEW Water, the Wisconsin Department of Natural Resources, and Brown and Calumet counties. Funding for the practices is through the Great Lakes Restoration Initiative and multiple state grants including a targeted runoff management grant and a grant through the Office of Great Waters.

Summary of Benefits:

- **Stabilize eroding channel/ditch**
- **Slow the flow of water downstream**
- **Provide treatment of tile water**
- **Can be designed to improve habitat**
- **Improve drainage**
- **Reduces maintenance needs (ex. ditch cleanouts)**



(Graphic courtesy of Brittany Hanrahan)

The newly constructed two-stage ditch on top and a conventional dredging on bottom.

Close up of completed two-stage ditch in Outagamie County.

Lafayette County: A Fresh View and Cleaner Groundwater

In Lafayette County, a concerted effort is underway to address the issue of idle manure storages. The effort is spurred by the conclusion of the Southwest Wisconsin Groundwater & Geology (SWIGG) Study which heightened awareness of groundwater quality within the community.

In late 2022, Ruth Houtakker reached out to the Lafayette County Land Conservation Department with a request to properly close a manure storage on her farm. Upon further investigation, it was discovered that there were actually four manure storages on the farm, most of which had been idle since the 1980s when the family ceased farming due to financial hardships.

After numerous meetings and assessments, a plan was developed to close all four manure storages on the farm. Of the four storages, only one had minimal waste remaining in the structure, while the rest had composted down into a soil like material. This material and the remaining waste were mixed with the native soil to re-vegetate the sites once the project sites were completed. DATCP Conservation Engineering staff supported the project by visiting and surveying the site, provided design consultation and approval, and approving the final construction.

Idle manure storage. Photo courtesy of Lafayette County.

A significant portion of the project costs were offset through cost-sharing via the DATCP Soil and Water Resource Management grant awarded to Lafayette County. The project would not have been feasible for Ruth if she did not receive this grant funding. Ruth has expressed her many thanks for completing the project and commented on how her pasture is much better to look at now that the pits are gone. This project was a win-win – for groundwater and for Ruth!

In addition to addressing idle manure storages, the county is actively collaborating with farmers and other stakeholders to implement ongoing efforts aimed at safeguarding groundwater quality in Lafayette County with the adoption of other various conservation practices. Contact the county for more information.

New view after closure of manure storage. Photo courtesy of Layafette County.

Pike Passages: Restoring Wetlands in Marinette County

The Peshtigo Fish Passage and Streambank Restoration Project made major strides in 2023 towards enhancing the northern pike population in Green Bay and its tributaries. This multi-year effort by the Marinette County Land & Water Conservation Division (LWCD) focuses on evaluating local waterways for spawning potential, creating and improving wetland habitats, removing barriers to fish passage, and repairing an eroding Peshtigo River shoreline.

"Spawning habitat loss is the greatest threat to Wisconsin's northern pike population," said Chuck Druckrey, Marinette LWCD Water Resource Specialist. The northern pike – a popular catch among anglers – is the state's second largest predator fish and will feed on most creatures, even squirrels or waterfowl. "As an apex predator, the northern pike is critical to maintaining the balance of other fish populations in our lakes," explained Druckrey.

A key 2023 achievement was completing the Kuchta Wetland Restoration and Ditch Improvement Project, which created 2.4 acres of restored wetlands, replaced two failed culverts, and improved over a mile of agricultural drainage ditches to ease fish passage and create additional pike spawning habitat.

Two one-acre wetland scrapes were constructed adjacent to Spitzmacher Creek and existing agricultural drainage ditches were rerouted to flow through the newly excavated areas. Prior to this work, the site's western marsh was overgrown with the invasive reed canary grass and severely impacted by sediment accumulation. Extensive grading removed about two feet of built-up sediment and an adjacent ditch was rerouted to flow through the marsh.

Both the east and west marshes have a shallow, permanent pool with a continuous flow into Spitzmacher Creek. This allows adult pike to access the wetlands for spawning while also providing a way for young pike to get back out to the stream system.

In addition to constructing the new wetlands, the project also replaced two impassable culverts under a farm access road that had previously blocked a long segment of drainage ditch from the pike spawning run. The ditch was also steep and was blocked with brush and treetops from previous clearings.

Some landowners aren't aware that these large fish are using the draining ditches to travel for spawning," explained Druckrey. "We rescued several adult pike that had been trapped, but many others die when they can't make it back to the stream and that's what we want to avoid."

To address this, the ditch banks were cleared and regraded to gentler slope, which provides additional spawning habitat and allows the landowner easier access to mow for brush and tree control. Druckrey noted that the transformation of the area was remarkable.

By mid-summer, most of the newly created wetland area supported a diverse native wetland plant community dominated by rushes, sedges, and flowering annuals.

Restoring these areas not only allows for improved fish passage, it also greatly enhances the opportunity to study the spawning habits and travel patterns of these important predators. Marinette County LWCD conducts adult pike netting and tagging, as well as young of the year trapping on various streams. Continued monitoring will ensure that site remains functional for fish passage and provide more information on the spawning success.

Additionally, UW-Green Bay graduate students Sadie Swindall and Zachary Nordstrom collaborated with LWCD staff, researching pike spawning behavior. Their project uses surgically implanted acoustic transmitters that emit unique sound signals when the fish swim near receivers. Since little is known about pike behavior outside of the spawning season, they hope to track their seasonal movements within the waters of Green Bay.

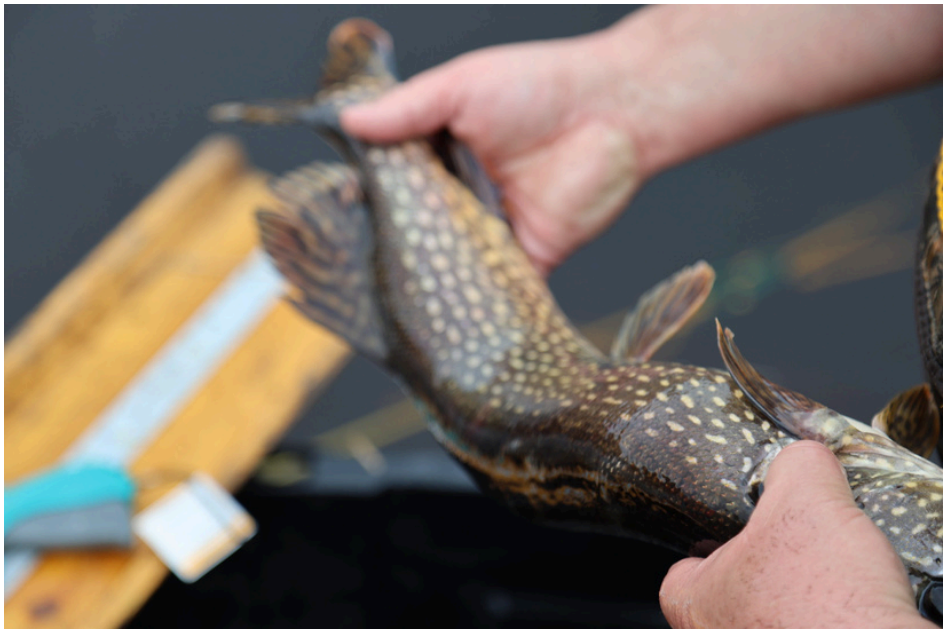
“Working with the county staff has been very beneficial for me and my research this year,” explained Swindall. “Chuck, along with Ken Dolata from Oconto County, have gone above and beyond to help me capture pike to implant acoustic receivers. My project definitely wouldn't have been as successful without their contributions.”

Several other critical fish passage projects were completed by Marinette County LWCD in 2023. The Bloch Road Wetlands project removed obstructions to reconnect 12.3 acres of sedge meadow and marsh with 0.75 miles of intermittent streams heavily used by spawning pike; over 30 fry per minute were documented drifting from the downstream marsh in 2022.

The State Forest Trail project replaced three makeshift fords created with concrete rubble and undersized pipes, improving fish passage on these old river channels. A forest access driveway and plugged culvert were also removed in an area where pike spawn but could become trapped by quickly receding water levels.

Looking ahead, Marinette County LWCD will continue work on habitat restoration projects, including additional wetland scrapes and replacing several culverts that block important channels leading to upstream spawning wetlands. Other initiatives include addressing streambank erosion along the Peshtigo River and partnering with NRCS to create new spawning wetlands and pollinator habitat.

Partnerships are critical to these projects, with funding or in-kind donations of labor and materials through the USFWS (NRDA), DNR, Marinette County LID, USDA-NRCS (EQIP), Coastal States Organization, Town of Peshtigo, Wisconsin Waterfowl Stamp Program, Wisconsin Coastal Management Program, and Oconto County NRDA funds.



Mill Creek Momentum: Adopting Soil Health Practices in Wood County

For decades, Mill Creek, a 47-mile tributary of the Wisconsin River, has faced severe water quality challenges. Originating in Marshfield, the stream has minimal flow in its upper 14 miles, which are classified as "Limited Aquatic Life" due to the Marshfield wastewater treatment plant contributing more than 90% of the stream flow at the discharge point. The lower 33 miles are designated as "Fish and Aquatic Life" waters, but the entire creek is listed as an impaired waterbody by the EPA for low dissolved oxygen levels, requiring a Total Maximum Daily Load (TMDL) plan.

The impairments stem from multiple sources – stormwater runoff carrying sediment, nutrients and other pollutants, stream bank erosion, and ammonia toxicity. Historical data even indicates significant organic loading to the stream. Compounding the issues, the dominant land use in the watershed is agriculture, accounting for 86.3% of the sediment loading and 87.7% of phosphorus loading as wetlands have been drained for agricultural expansion over the years.

While the watershed's challenges are formidable, producers in the Mill Creek watershed have taken an on-the-ground approach: adopting and promoting soil health practices.

Shane Wucherpfennig, County Conservationist for the Wood County Land and Water Conservation Department (LWCD), has witnessed this transformation firsthand.

"The soil health movement has sparked more conservation progress in the last five to 10 years than ever before," he stated.

For over 20 years, Wood County LWCD built relationships with local producers while seeking funding to help them address the issues in the watershed. In 2023, 15 Wood County farmers adopted no-till and/or cover cropping practices within the Mill Creek Watershed, with support from DNR's Multi-Discharger Variance and 9-Key funds, and DATCP's SWRM funds. With these practices, producers ensure cleaner waterways and see a range of soil health benefits, including improved infiltration, less soil loss, increased nutrient retention, and a stronger soil structure.

Wucherpfennig also recognized that emphasizing the economic benefits of soil health practices is another effective tool for soil health outreach. "We know that operation costs are rising, and with these practices there is also a great return on investment by saving on labor, input costs, fuel, wear and tear on equipment, and time," he explained.

Today, soil health workshops foster partnerships between agencies, nonprofits, and an increasingly engaged producer community. "Wisconsin is unique to have funding mechanisms that support locally-led conservation, and it's been exciting to see the state supporting the producer-led initiative," added Wucherpfennig.

Outreach and Education

Calumet County

The Between the Lakes field day was made up of three sessions of concurrent talks. Participants rotated through all the stations in small groups. During the first session, Dave Murphy (360 Regional Manager) and Nick Dallmann (Dallmann East River Dairy) discussed and demonstrated the 360 Rain implement for applying wastewater to standing corn. Participants learned about how the 360 unit works, uses for this type of tool, how the 360 runs autonomously, and what they may need to consider using this on their land. Participants were able to get up close and watch this machine apply nutrients, plus turn while avoiding crushing crops all autonomously.

The second session included a discussion about vertical tillage fitting in soil health system. Led by Steve Hoffman of InDepth Agronomy, farmers including Nick Dallmann and John Vandenboom (Holsum Dairies), and others attending the event had the opportunity to share their experiences and discuss this potential use of slight tillage. The third session was comprised of Nick Dallmann and John Vandenboom discussing their experiences with no-till corn after winter ryelage harvest. This field day was very well attended. In total, over 155 people were present with the 360 Rain unit being a large draw for the event.

Demonstration the 360 Rain implement. Photo courtesy of Calumet County.

Chippewa County

In April 2023, Chippewa County hosted a Cover Crop Walk-n-Talk. This was an on-farm field day organized to create a casual setting like a “pasture walk”, where farmers and agricultural professionals could visit each other and look at fall planted cover crops as they overwintered into spring of 2023. Participants “truck-rallied” to look at four unique cover crop fields on two separate farms: rye drilled after soybeans, a multispecies mix drilled after rye grain, rye air interseeded into corn for grain, and a multispecies mix drilled after snapbeans. Participants dug holes, listened to the host farmers explain their own cover crop rationale, and saw first-hand what “living roots” look like in early spring. Resource topics of interest were soil health, soil armor, soil conservation, and nutrient cycling.

In total, 31 people attended (20 farmers, plus 11 agency staff). Attendees got to see “green and growing” cover crop vegetative and root materials, already in action in early April, and farmers and agricultural professionals shared ideas and experiences about cover crops and soil health throughout the event. It was jointly pursued by Land Conservation, NRCS, and UW Extension. The lunch was sponsored by a local feed dealer and one of the host farmers provided dessert.

In June 2023, Chippewa County hosted a Cover Crop Walk-n-Talk. This was a two-location field day that began on a Bloomer Farm and ended with guided pontoon rides along the shore of Lake Wissota. The audience for this event was farmers and Lake Wissota property/shoreline owners.

This event was jointly conducted by Land Conservation, Chippewa Valley Producer Led Watershed Council, Chippewa County Farm Bureau, Chippewa County Farmers Union, and the Lake Wissota Stewardship Project.

The day started at the farm where farmstead, barnyard, and cropland conservation practices were shown and discussed on a hay wagon ride around the Mike and Rosanne Zwiefelhofer Farm. Once done at the farm, participants drove to the WI Farmers Union-Kamp Kenwood facility on Lake Wissota. Lake Association members had numerous pontoon boats ready, and everyone toured the shoreline looking at natural vegetative plantings to minimize erosion. Several shoreline owners invited participants into their yard to look at rain gardens. Both farmers and “lakers” became newly aware of conservation and water quality efforts conducted by their counterparts. An evening meal was served that consisted of local beef hamburgers and other local foods and beverages. Resource topics of interest were watersheds, land use, minimizing phosphorus content of ag surface water runoff, and slowing and infiltrating runoff water on a lake property before it erosively flows to the lake. A total of 44 people attended (13 farmers, 25 lakers, and six agency).

Having opportunities for farmers and lake property owners to experience each other’s value and use of the land, plus their mutual efforts to keep surface water clean builds collaboration in the county. One Lake Association member was heard saying “this was so good; I hope this becomes the first annual Land to Lakes event”.

Winnebago County: Soil Health in the Rat River Watershed

The Town of Dale-Rat River Watershed is the highest phosphorus-loading HUC 12 watershed in Winnebago County. In 2021, the Great Lakes Sediment and Nutrient Reduction Program (GLSNRP) grant was received by Fox Wolf Watershed Alliance (FWWA), in partnership with the Winnebago County Land and Water Conservation Department (LWCD). This grant was dedicated to work towards soil health adoption in the Rat River Watershed.

As part of the GLSNRP grant, the LWCD agreed to do multiple forms of outreach to spread the concept of soil health. This outreach led to a meeting with a particular farmer, where ideas were shared, and a success story was just beginning. The farmer spoke about the producer-led groups that have been popping up all around the state. He talked about traveling to attend other group meetings but that he had a passion for starting one in his area.

Two months later, the LWCD collaborated with this farmer to assist in hosting his first field day to bring together local farmers. At this field day, soil health, as well as the benefits and struggles that come along with it, were discussed. Before the event ended, the idea of starting a producer-led group was brought up. This field day sparked a lot of interest in forming a group. As the summer led into fall, a few more field days were held, and it seemed as though there was a persistent core group of farmers who always showed up.

This core group of farmers, as well as a few others, held their first official producer-led group meeting in February of 2023, calling themselves the "Muddy Bottom Farmers".

The group's mission is to improve water quality and soil structure through the implementation of soil health principles and conservation practices, along with providing outreach and education to farmers and the general public. Although the majority of the members are currently producers in the Rat River Watershed, this group expands throughout the Lake Poygan HUC 10 watershed. The LWCD's outreach efforts in the Rat River Watershed now focus on supporting the Muddy Bottom Farmers through partnering in identifying conservation projects, encouraging innovative projects, and assisting in the education of rural and non-rural neighbors. The Muddy Bottom Farmers applied for their first Producer-Led Watershed Protection Grant funded by DATCP in September 2023. The group was awarded their full request for the 2024 grant period. These funds will be allocated to support the group's mission by hosting a winter workshop, multiple field days, and promoting the Muddy Bottom Farmers and producer-led groups.

Wisconsin Department of Agriculture, Trade and Consumer Protection
Division of Agricultural Resource Management
Bureau of Land Water Resources
2811 Agriculture Drive
PO Box 8911
Madison, WI 53708-8911
(608) 224-4620
https://datcp.wi.gov

Wisconsin Department of Natural Resources
Bureau of Watershed Management
101 S. Webster St.
WT/3, Madison, WI 53703
https://dnr.wi.gov