LAND + WATER

RESOURCE MANAGEMENT PLAN

2026-2035

IOWA COUNTY WISCONSIN

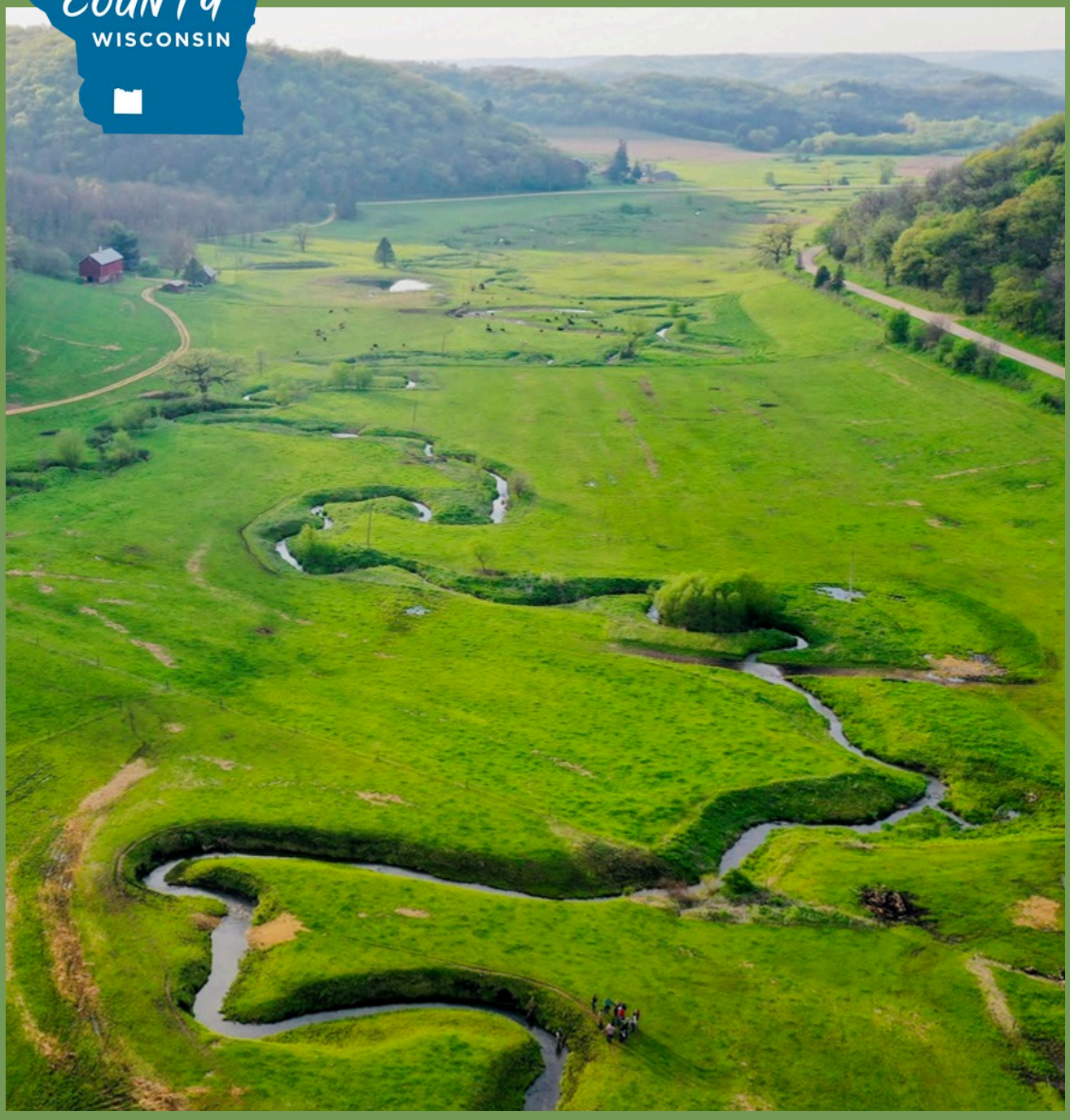

Photo: Randy Manning

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RESOURCE MANAGEMENT PLAN
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ACKNOWLEDGEMENTS

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INTRODUCTION

Iowa County's 10-year Land and Water Resource Management Plan was written by the Land Conservation Department with input from a variety of stakeholders, including the Land Conservation Committee, the Wisconsin Department of Agriculture and Consumer Protection, the Wisconsin Department of Natural Resources, a Technical Advisory Committee, and a Citizen Advisory Committee.

This plan serves several purposes:

- To fulfill requirements of Wisconsin Statute Chapter 92.20 and Administrative Code ATCP 50.12
- To assess the natural resources of Iowa County, especially related to soil and water.
- To maximize our conservation impact with existing capacity by prioritizing issues and geographic focus areas
- To identify gaps in programming where new grants, partnerships, or other resources are needed to build capacity

The core purpose of the Land Conservation Department continues to be, as stated in Wis. Stat. Ch. 92.10(2): "to conserve long-term soil productivity, protect the quality of related natural resources, enhance water quality, and focus on severe soil erosion problems."

Solving conservation problems is complex, involving not just environmental and agronomic science, but also sociology, economics, and policy. Some of the barriers to conservation adoption are larger than any one county or state and are ingrained in global agricultural systems and policies.

The challenge then, especially with limited resources, is to prioritize our workload to the most impactful activities, use the best available information to guide our strategies and approaches, keep up-to-date with emerging challenges and opportunities, and respond to the needs of our local communities where we can.

Iowa County lies in a unique and beautiful part of Wisconsin, with a rich history and a small-town, rural character that residents and visitors value. Agriculture and natural resources play an important role in the beauty, history, economy, and character of Iowa County, and the Land Conservation Department takes its responsibility in protecting those resources seriously. Together with farmers, landowners, partners, and elected officials, we can make progress in protecting productive farms, clean water, and the rural beauty of Iowa County for generations to come.

LOCATION + GEOLOGY

Iowa County is located in southwest Wisconsin and encompasses an area of approximately 768 square miles, or 491,520 acres. The county seat and largest city is Dodgeville, and there are 14 townships. Iowa County lies toward the southern end of a region called the Driftless Area, which includes parts of Wisconsin, Minnesota, Iowa, and Illinois. The Driftless Area was not covered by the last glaciers and therefore lacks glacial deposits called "drift." Instead of land being flattened and moved by glaciers, it has been slowly eroded by running water over 2 million years, forming a complex of deep valleys, broad ridges, and steep slopes.

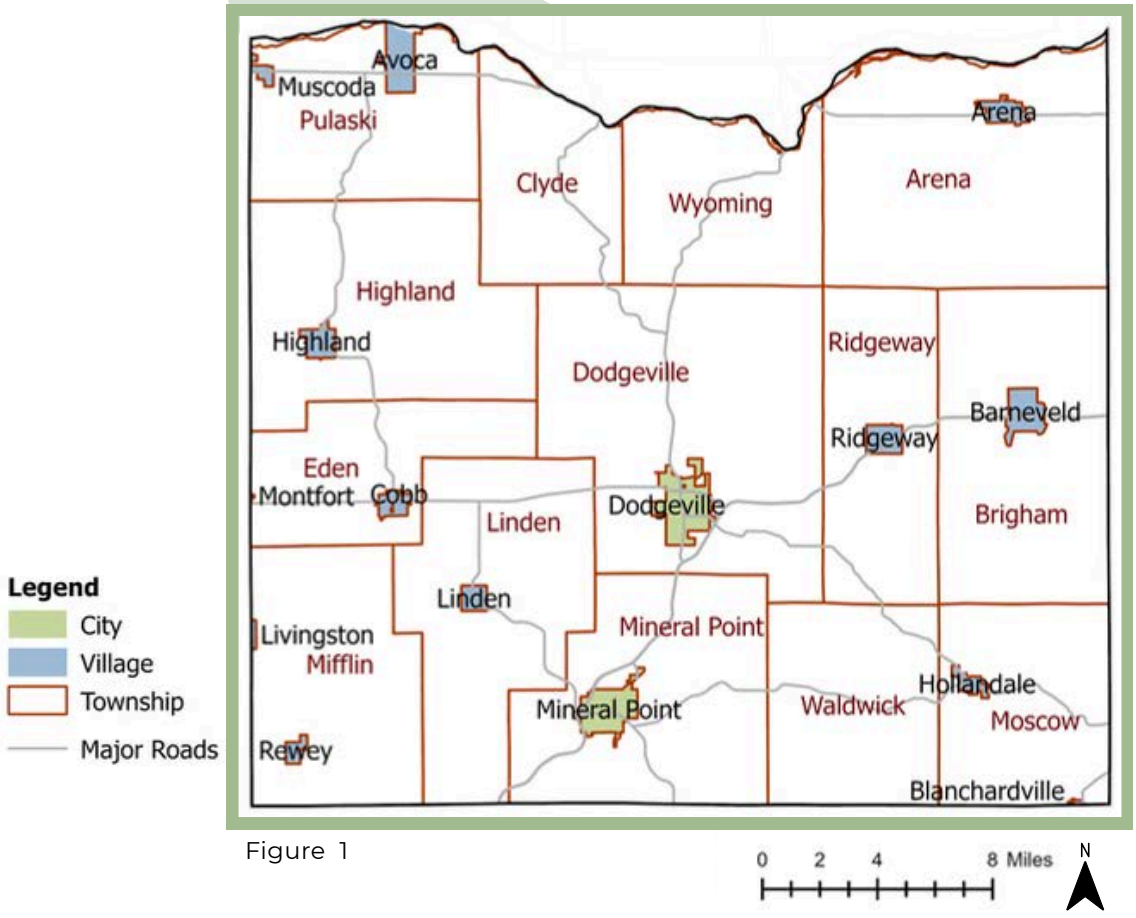


Figure 1

Photo: Iowa County overlook-Mayme Keagy

Iowa County is divided by the "military ridge" escarpment. Streams on the north side drain to the Wisconsin River, while streams to the south drain to the Pecatonica River. The escarpment tends to divide agricultural and natural cover as well; the topography is steeper to the north, with more forestland and less agriculture. South of the escarpment tends to be more rolling and open, with the best farmland in the county and historical native grassland ecosystems.

ELEVATION

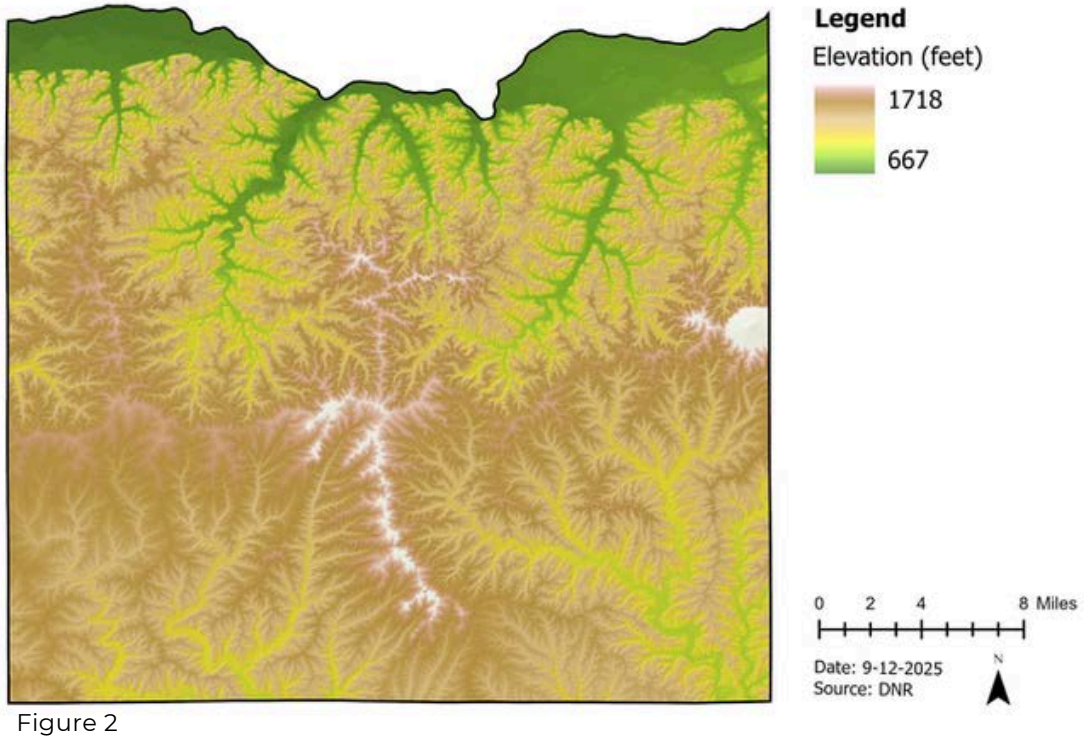
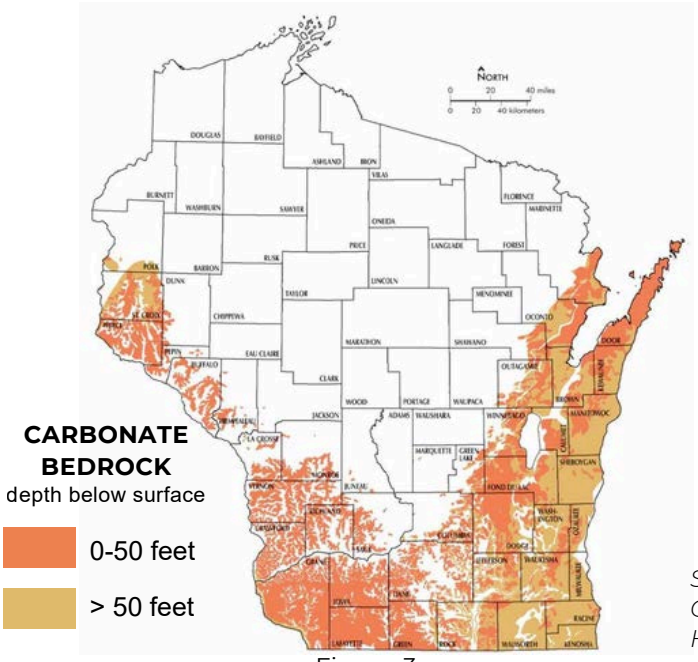


Figure 2

Iowa County's bedrock consists of layers of sedimentary dolomite, sandstone, limestone, and shale, originally deposited by ancient seas. While the highest-elevation spot, the Blue Mounds, has "young" rock of Silurian era (around 425 million years ago), lower elevations have been eroded to older rock layers, with the oldest exposed layers from the Cambrian period (around 500 million years ago).

Dolomite and limestone are carbonate rocks that are susceptible to fracturing and easily dissolved by water, so the rock often includes cracks, caverns, caves, springs, and sinkholes-collectively called "karst" features. The shale layers can act as aquitards, forcing water to move laterally, which can result in springs forming mid-slope.

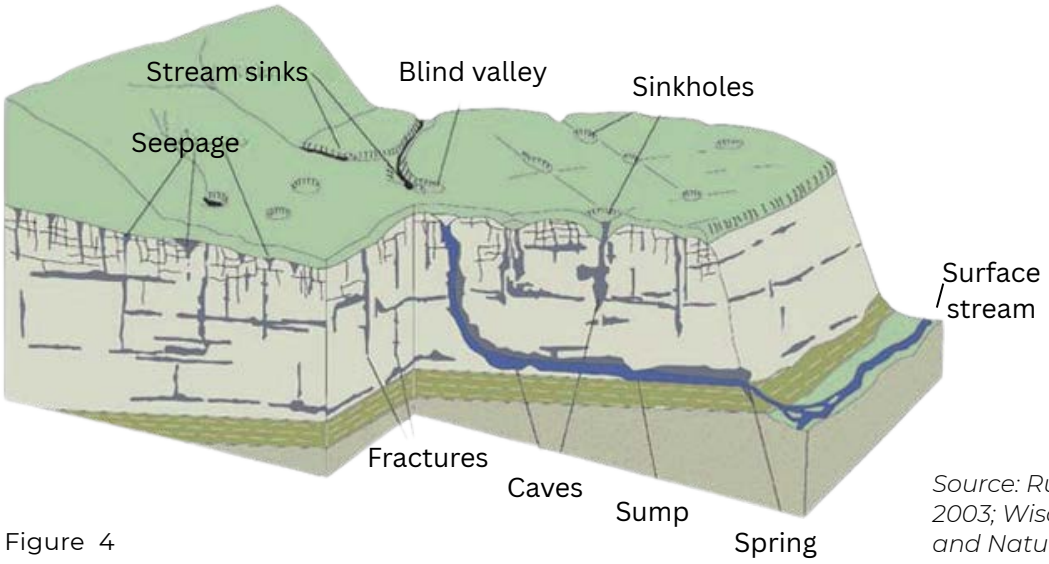
KARST POTENTIAL IN WISCONSIN



Source: Wisconsin Geological and Natural History Survey

Figure 3

TYPICAL FEATURES OF A KARST SYSTEM AND LANDSCAPE



Source: Runkel and others, 2003; Wisconsin Geological and Natural History Survey

Figure 4

Photo: Sara Hovis

BEDROCK GEOLOGIC MAP OF SOUTHWEST WISCONSIN

GEOLOGIC UNITS

- Silurian Dolomite
- Maquoketa Shale
- Sinnipee Group
  - Galena Fm
  - Decorah Fm
  - Platteville Fm
- Ancell Group
  - Glenwood Shale
  - St. Peter Sandstone
- Prairie du Chien Group
- Cambrian sandstones
  - Trempealeau
    - Jordan Sandstone
    - St. Lawrence Dolomite
  - Tunnel City Sandstone
  - Wonewoc Sandstone

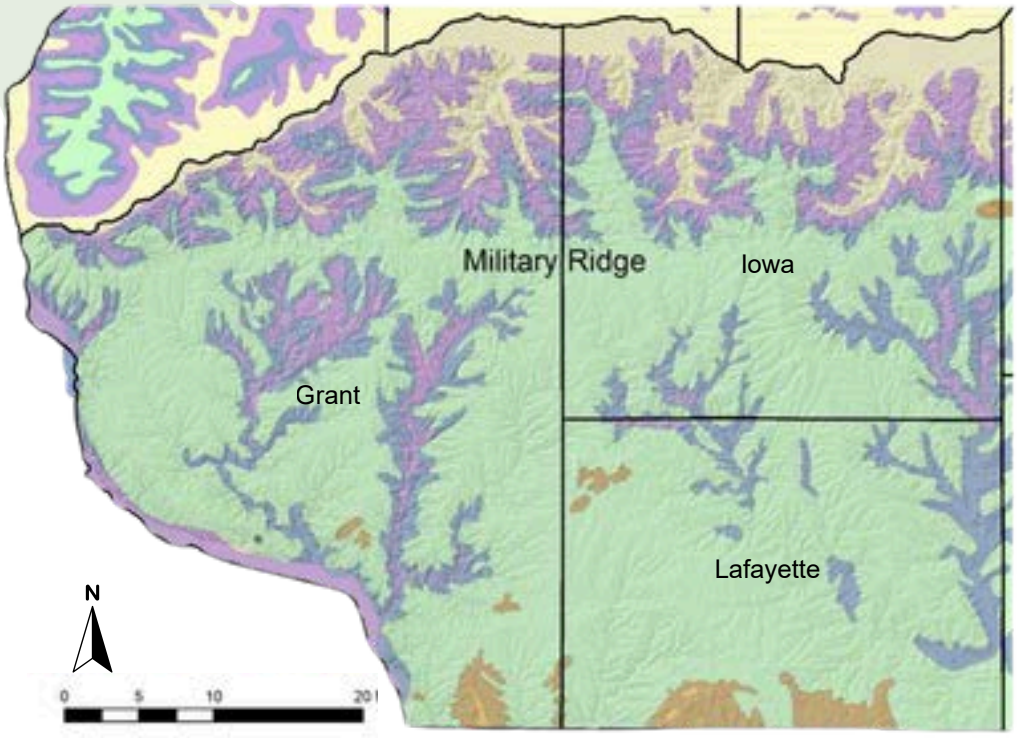


Figure 5 Source: Mudrey et al. 1982 as found in Assessing Private Well Contamination in Grant, Iowa, and Lafayette Counties, Wisconsin: The Southwest Wisconsin Groundwater and Geology Study.

Photo: Quarry in northwest Iowa County- Katie Abbott

GEOLOGIC UNITS AND THEIR DISTRIBUTION IN SOUTHWEST WISCONSIN

YOUNGEST ↕ OLDEST

Geologic Name	Composition	Hydrogeologic Function	Geographic Extent
Sand and Gravel	sand and gravel	aquifer	floodplains of the Wisconsin Mississippi Rivers and tributary streams; valley bottoms
Silurian Dolomite	dolomite	not an aquifer in this region	present only at Blue Mounds in Iowa County; not present elsewhere in the SWIGG counties
Maquoketa Shale	shale	aquitard	present only in mounds at Blue Mounds in Iowa County, Belmont Mound near Platteville, and isolated mounds in southern Grant and Lafayette Counties
Galena Dolomite	dolomite	aquifer	caps uplands south of Military Ridge; eroded away in river and stream valleys; in the Sinnipee Group
Decorah Shale	shale/dolomite	possible aquitard	present in subsurface over most of region; eroded away in stream/river valleys; in the Sinnipee Group
Platteville Dolomite	dolomite	aquifer	present over most of region; eroded away in stream and river valleys; in the Sinnipee Group
Glenwood Shale	shale	aquitard	present in most region; eroded away in stream and river valleys; can be inches to a few feet thick
St. Peter Sandstone	sandstone	aquifer	present throughout region; eroded away in stream and river valleys; has irregular unconformable base
Prairie du Chien Group	dolomite/ limestone	aquifer	present throughout region; eroded away in stream and river valleys
Jordan Sandstone	sandstone	aquifer	present throughout region; eroded away in stream and river valleys
St. Lawrence Formation	dolomite	possible aquitard	present throughout region; eroded away in stream and river valleys
Cambrian Sandstones	sandstone	aquifer	sandstones of the Tunnel City, Wonewoc, and Mount Simon Formations; present throughout region

Table 1 Source: Assessing Private Well Contamination in Grant, Iowa, and Lafayette Counties, Wisconsin: The Southwest Wisconsin Groundwater and Geology Study.

SOIL RESOURCES

Rainfall Simulator- Mayme Keagy

Soil in Iowa County originated from wind-blown sediment (loess) and erosion of the bedrock, except for areas along the Wisconsin River that formed from alluvium (loose sediments deposited by running water) and glacial outwash. Soil textures are primarily silt loams and sandy loams, with finer sands in the Wisconsin River floodplain, and some slopes with a higher clay component.

Soil Sample- Sara Wilhelm

GENERAL SOILS MAP

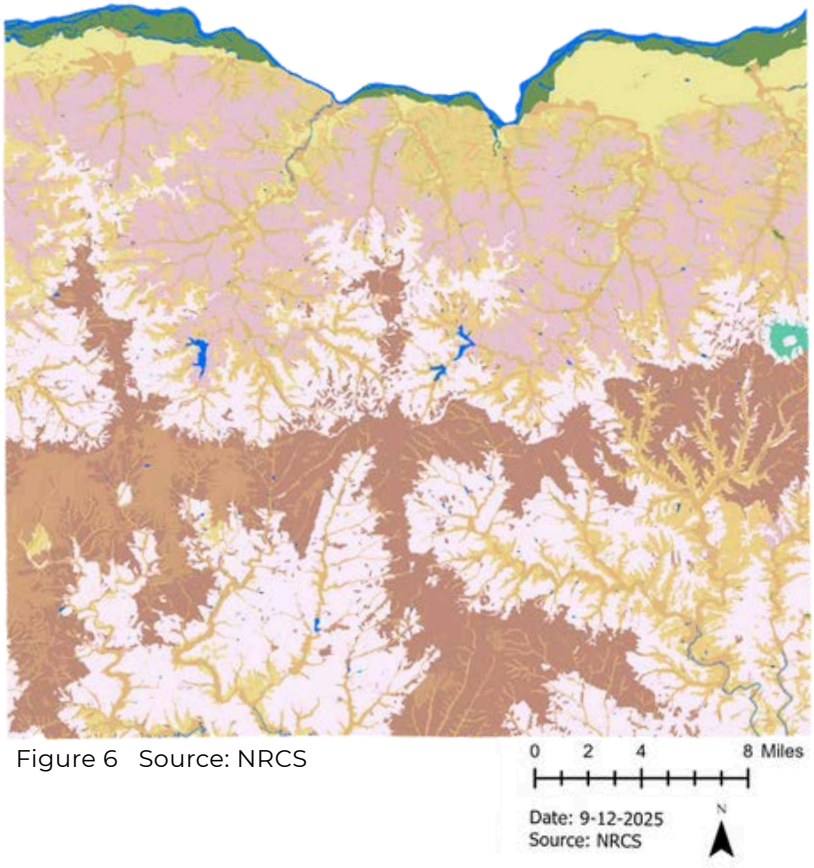
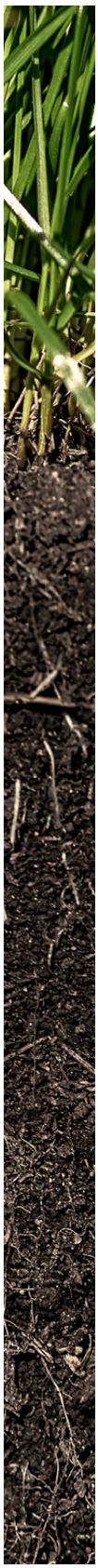


Figure 6 Source: NRCS

SOIL MAP ASSOCIATION DESCRIPTIONS



Derinda – Millsdale: Moderately deep to shale bedrock, thin dark silty to clayey residual materials that are moderately well to poorly drained soils on summits, shoulders, backslopes, and footslopes in the Bedrock-controlled Uplands. These soils are found on ridges, mounds, and hill slopes in the Wisconsin Driftless Area landscape. The thickness of soil is 20 to 40 inches deep, and the water tables range from 12 inches to >80 inches in depth. The inherent vegetation is Deciduous Hardwood Forest of Basswood, Ash, Oak, and Hickory of southern western Wisconsin.

Tama – Lindstrom – Muscatine: Very deep, thick dark silty loess materials that are well to somewhat poorly drained soils on summits, shoulders, backslopes, and footslopes in the Bedrock-controlled Uplands. These soils are found on ridges, valley sides, and hill slopes in the Wisconsin Driftless Area landscape. The thickness of soil is more than 80 inches deep, and the water tables range from 12 inches to >80 inches in depth. The inherent vegetation is Tall Grass Prairies of southern western Wisconsin.

Ashdale – Dodgeville – Sogn: Deep to shallow dolostone bedrock, thin dark silty loess to residual materials that are well drained soils on summits, shoulders, and backslopes in the Bedrock-controlled Uplands. These soils are found on ridges, valley sides, and hill slopes in the Wisconsin Driftless Area landscape. The thickness of soil is 20 to 60 inches deep, and the water tables are >80 inches in depth. The inherent vegetation is Tall Grass Prairies of southern western Wisconsin.

Fayette – Rozetta – Stronghurst: Very deep, thick silty loess materials that are well to somewhat poorly drained soils on summits, shoulders, backslopes, and footslopes in the Bedrock-controlled Uplands. These soils are found on ridges, valley sides, and hill slopes in the Wisconsin Driftless Area landscape. The thickness of soil is more than 80 inches deep, and the water tables range from 12 inches to >80 inches in depth. The inherent vegetation is Oak and Hickory Woodlands of southern western Wisconsin.

Fayette – Rozetta – Stronghurst: Very deep, thick silty loess materials that are well to somewhat poorly drained soils on summits, shoulders, backslopes, and footslopes in the Bedrock-controlled Uplands. These soils are found on ridges, valley sides, and hill slopes in the Wisconsin Driftless Area landscape. The thickness of soil is more than 80 inches deep, and the water tables range from 12 inches to >80 inches in depth. The inherent vegetation is Oak and Hickory Woodlands of southern western Wisconsin.

Palsgrove – Newglarus – Dunbarton: Deep to shallow to limestone, thin silty loess to residual materials that are well drained soils on summits, shoulders, and backslopes in the Bedrock-controlled Uplands. These soils are found on ridges, valley sides, and hill slopes in the Wisconsin Driftless Area landscape. The thickness of soil is 20 to 60 inches deep, and the water tables are >80 inches in depth. The inherent vegetation is Oak and Hickory Woodlands of southern western Wisconsin.

SOIL MAP ASSOCIATION DESCRIPTIONS (CONTINUED)

Dorerton – Elbaville – Fivepoints: Very deep to shallow to dolostone, thin silty loess to residual materials that are well drained soils on summits, shoulders, and backslopes in the Bedrock-controlled Uplands. These soils are found on ridges, valley sides, and hill slopes in the Wisconsin Driftless Area landscape. The thickness of soil is 20 to >80 inches deep, and the water tables are >80 inches deep. The inherent vegetation is Oak, Maple, Basswood, and Hickory Woodlands of southern western Wisconsin.

Northfield – Gale – Elkmound: Shallow to moderately deep to sandstone bedrock, thin loamy to sandy residual materials that are somewhat excessive to well drained soils on summits, shoulders, and backslopes in the Bedrock-controlled Uplands. These soils are found on ridges, knolls, valley sides, and hill slopes in the Wisconsin Driftless Area landscape. The thickness of soil is 20 to 40 inches deep, and the water tables >80 inches in depth. The inherent vegetation is Mixed Forest of Oak, White Pine, and Hickory of southern western Wisconsin.

Churchtown – Council – Windward: Very deep, thick silty to sandy hillslope sediment materials that are well to somewhat excessively drained soils on backslopes and footslopes in the Bedrock-controlled Uplands. These soils are found on valley sides, ravines, pediments, and hill slopes in the Wisconsin Driftless Area landscape. The thickness of soil is more than 80 inches deep, and the water tables is >80 inches in depth. The inherent vegetation is Mixed Sugar maple, Oak, Basswood, and Hickory Woodlands of southern western Wisconsin.

Chaseburg – Arenzville – Orion: Very deep silty alluvial materials that are well to somewhat poorly drained soils on toeslopes and footslopes in the River Valleys. These soils are found on channels, drainageways, and ravine bottoms along River Valleys in the Wisconsin Driftless Area landscape. The thickness of soil is more than 80 inches deep, and the water tables range from 12 inches to >80 inches in depth. The inherent vegetation is Cottonwood, Silver Maple and Black Cherry Forests of southern western Wisconsin.

Sparta – Chelsea – Rasset: Very deep sandy to loamy materials that are excessively to well drained soils on summits, shoulders, backslopes, and footslopes in the River Valleys. These soils are found on flats, rises, and dips along stream terraces in the Wisconsin Driftless Area landscape. The thickness of soil is more than 80 inches deep, and the water tables are >80 inches in depth. The inherent vegetation ranges from Tall Grass Prairies to Scrub Oak Barrens of southern western Wisconsin.

Algansee – Kalmarville – Palms: Very deep sandy to loamy to organic materials that are somewhat poorly to very poorly drained soils on toeslopes and footslopes in the River Valleys. These soils are found on oxbows, meanders, levees, backswamps, and depressions along floodplains in the Wisconsin Driftless Area landscape. The thickness of soil is more than 80 inches deep, and the water tables range from 12 inches above the surface to <40 inches in depth. The inherent vegetation is Mixed Hardwoods Swamps, Wetland Shrubs, and Sedge Marshes of southern western Wisconsin.

Pasture near Dodgeville, WI - Mary Kay Baum

Soil depth to bedrock is 20 feet or less in the majority of the county, except in floodplains of larger streams and the Wisconsin River, which can be as deep as 200 feet. (figure 11) Less than half of Iowa County's soils are prime or of statewide importance, with the most productive soils in the southern half of the county. (figure 7)

FARMLAND CLASSIFICATION

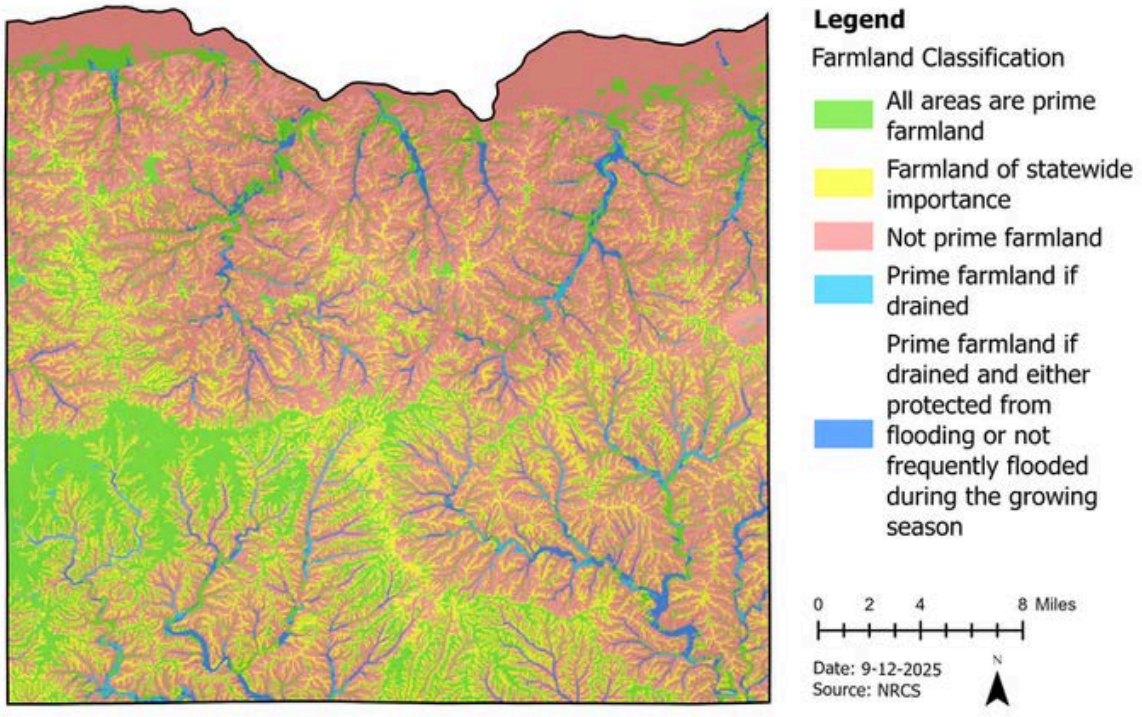


Figure 7

EROSION

Many soils are highly erodible. K, or "erodibility factor," represents the soil's susceptibility to sheet and rill erosion by water. K values in Iowa County range from 0 to 0.55, with higher numbers meaning a higher erosion susceptibility. Almost half (49%) of the soils have high K factors (0.43- 0.55), about 45% are moderate (0.24-0.37) and about 6% are low (0.2 or less). (figure 8)

The T value, or "tolerable soil loss," estimates the maximum average annual rate of soil erosion that can occur without reducing crop productivity (in tons per acre per year). Approximately one third of the soils in Iowa County have T values of 1 or 2, one third have 3, and one third have 4 or 5. (figure 9)

Field erosion- Mayme Keagy

K FACTORS OF IOWA COUNTY

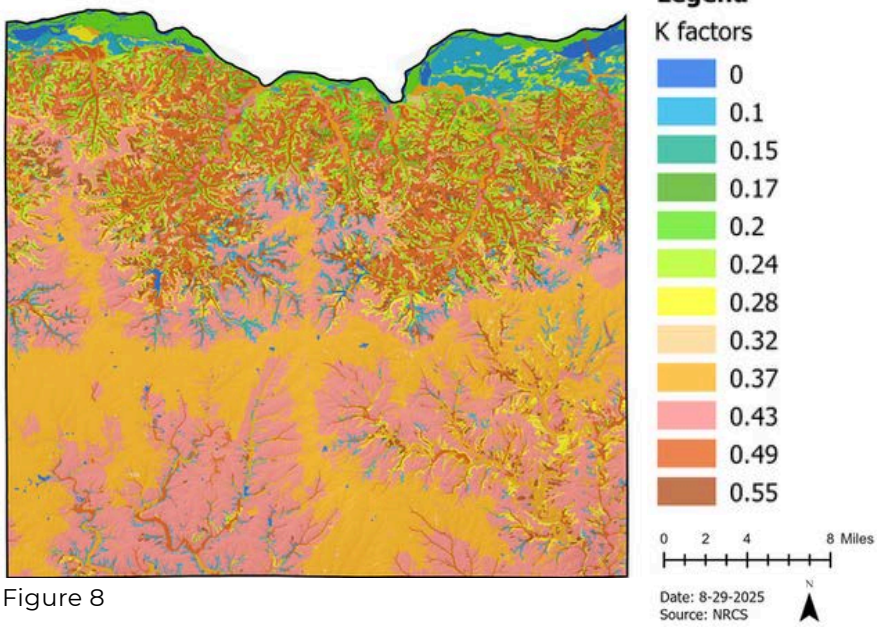


Figure 8

T VALUES OF IOWA COUNTY

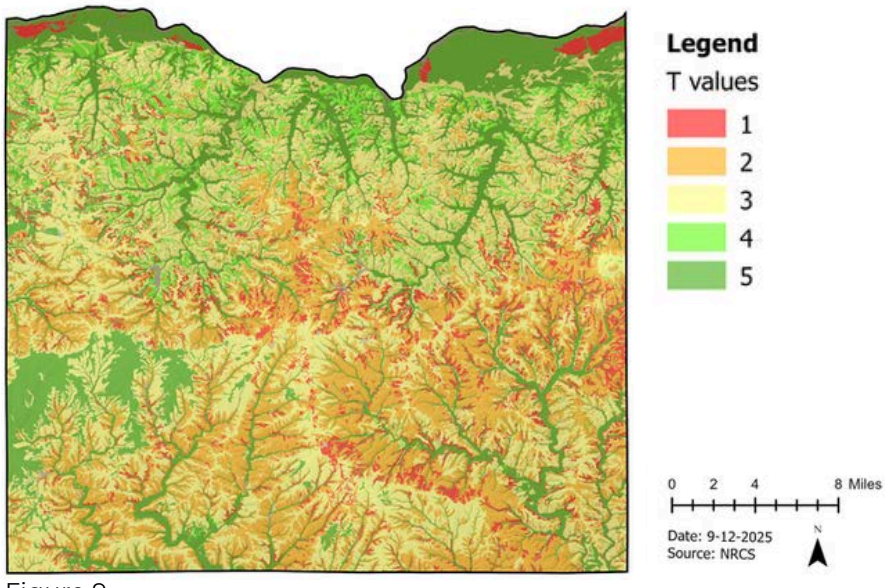


Figure 9

Priority areas to focus on reducing soil erosion in Iowa County are cultivated lands that have T values of 1 or 2, or K values 0.43 or higher. Approximately 60% (over 97,000 acres) of cultivated land in Iowa County falls into this category, with 16% (over 26,000 acres) of cultivated land having both a high K value and low T value soil. (figure 10) These factors are distributed throughout the county and found in all watersheds, although they are more concentrated in the southern half of the county where there are more cultivated fields.

CULTIVATED SOILS WITH HIGH T AND K VALUES

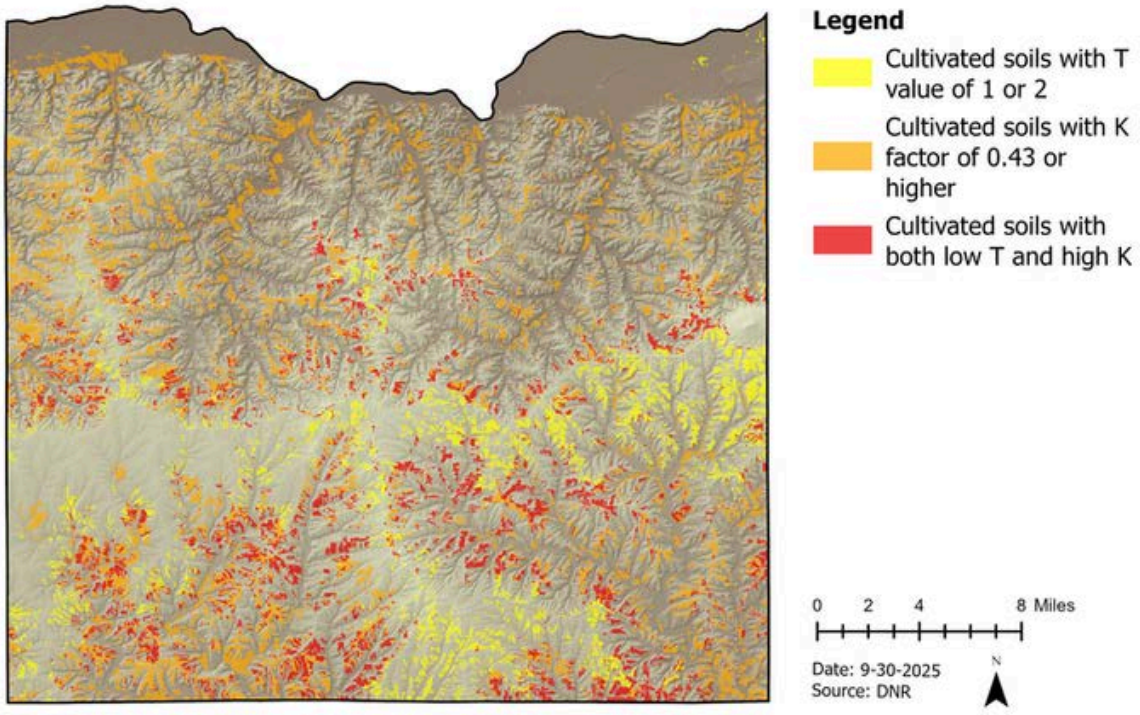
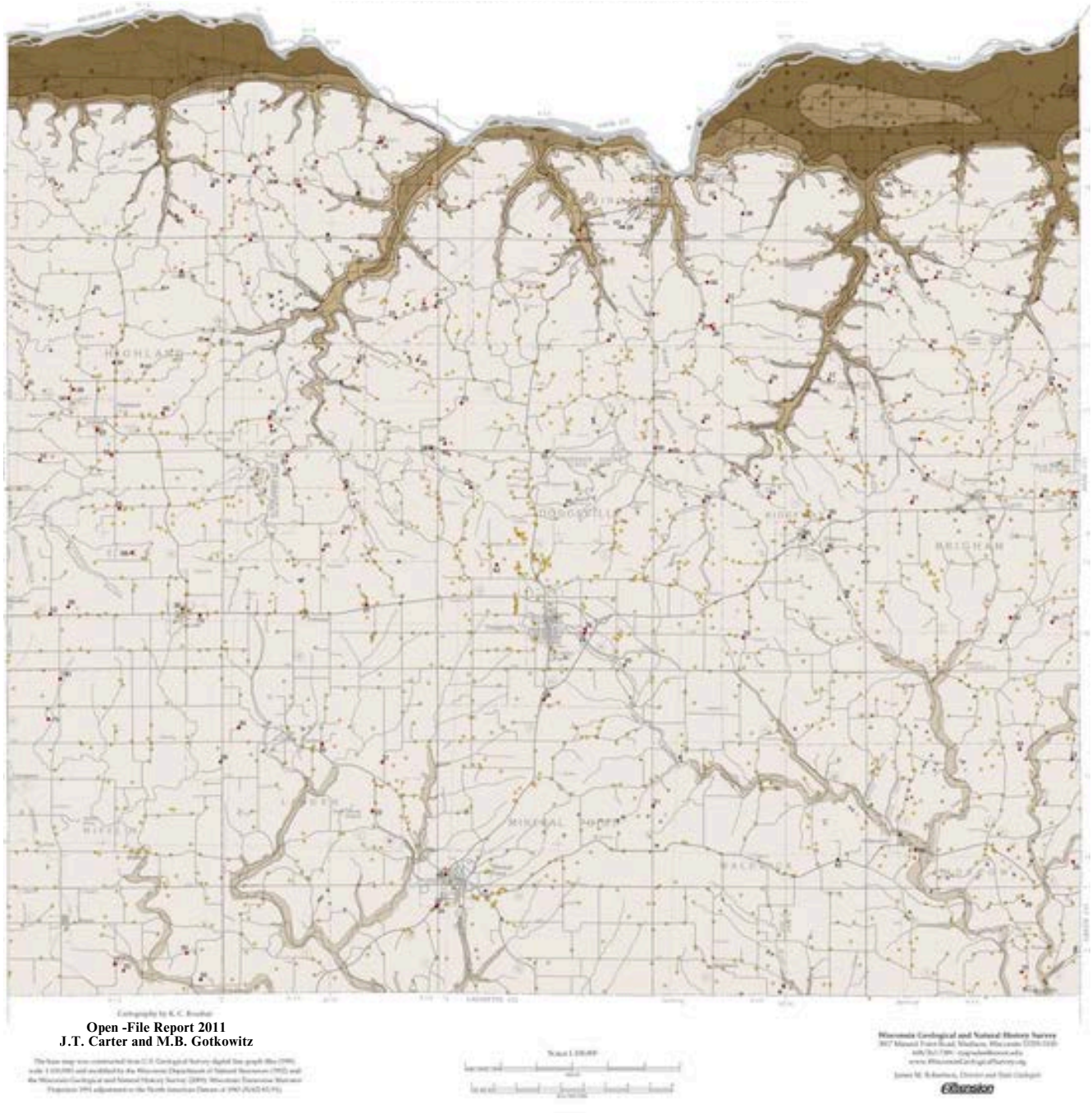


Figure 10

Harvest in southern Iowa County - Mary Kay Baum

DEPTH TO BEDROCK MAP OF IOWA COUNTY, WISCONSIN



Thickness

Feet below land surface

- 0-20
- 20-50
- 50-100
- 100-150
- 150-200
- >200

Depth to bedrock data points

Fully penetrating wells

- Coarse Grained
- Fine Grained
- Course-fine Sequence
- Dirt/Fill
- Coarse Grained (Outlier)
- Fine Grained (Outlier)
- Coarse-Fine Sequence (Outlier)

Partially penetrating wells

- Coarse Grained
- Fine Grained
- Course-fine Sequence

Other

- x Rock outcrop
- Geophysical study - W.A. Sauck (unpub.data, 1994)

Figure 11

SURFACE WATER

Grassy stream - C. Bleser

Iowa County is dissected by approximately 1,800 miles of perennial and intermittent streams. (figure12) The small headwaters and tributaries join in dendritic patterns of successively wider streams until they reach the Wisconsin or Pecatonica Rivers.

DNR lists 24 lakes in Iowa County, and only five that are over 50 acres. Four were created by dams, while one is a naturally occurring backwater of the Wisconsin River. Other smaller waterbodies are either backwaters or dam-created, many on private land.

SURFACE WATER MAP

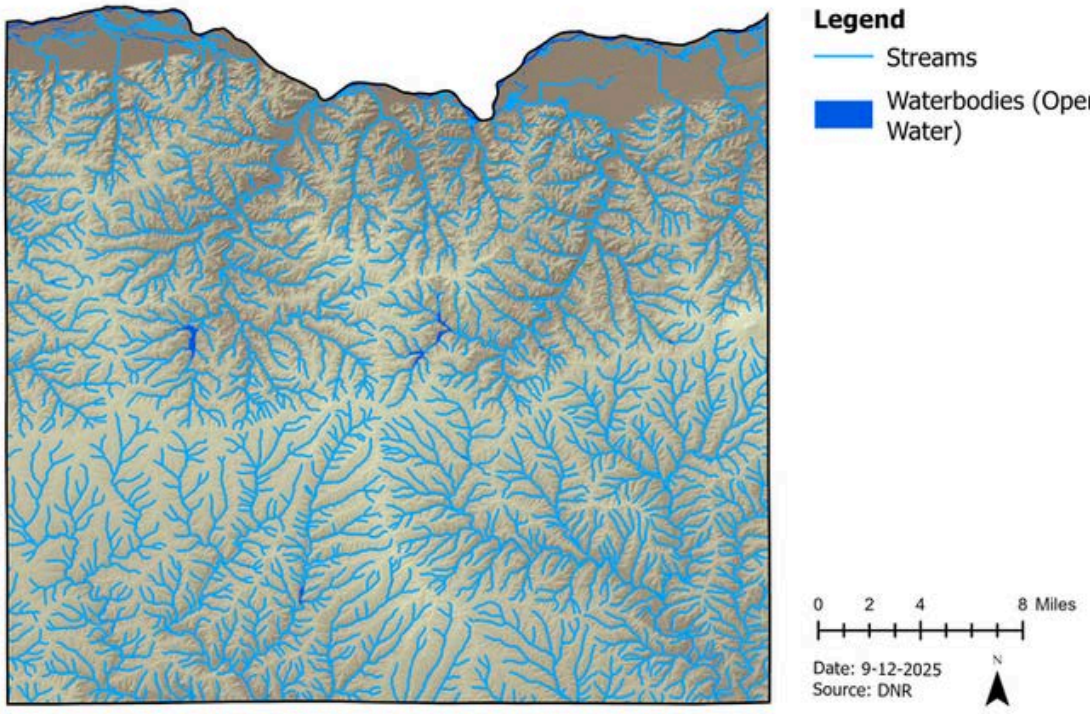


Figure 12

Nationally, Iowa County falls within the Upper Mississippi River basin. Two state-level drainage basins cover the county, split north and south by the Military Ridge escarpment: Lower Wisconsin and Sugar-Pecatonica. A small portion of the Grant-Platte basin falls within the southwest corner of the county; DNR often lumps this basin with the Sugar-Pecatonica so this plan will do the same. There are thirteen DNR watershed management units in Iowa County, including nine with more than ten square miles within the border. (figure 13) Iowa County's watersheds contain a mix of both degraded and healthy surface water.

WATERSHEDS MAP

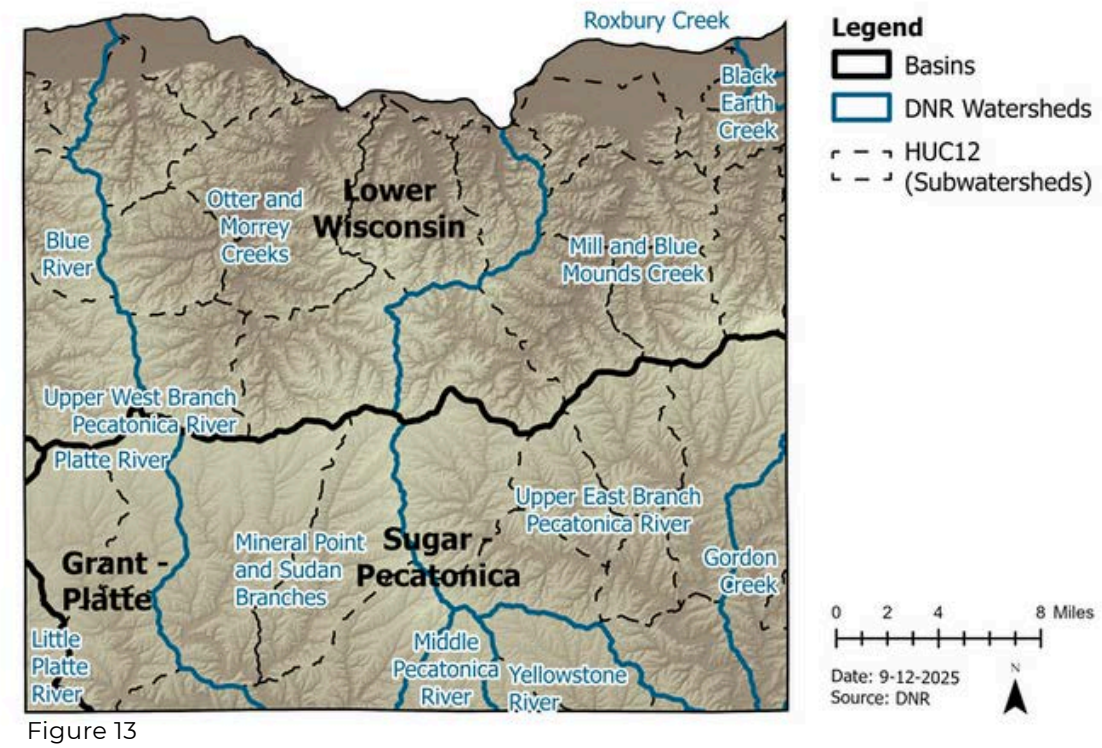
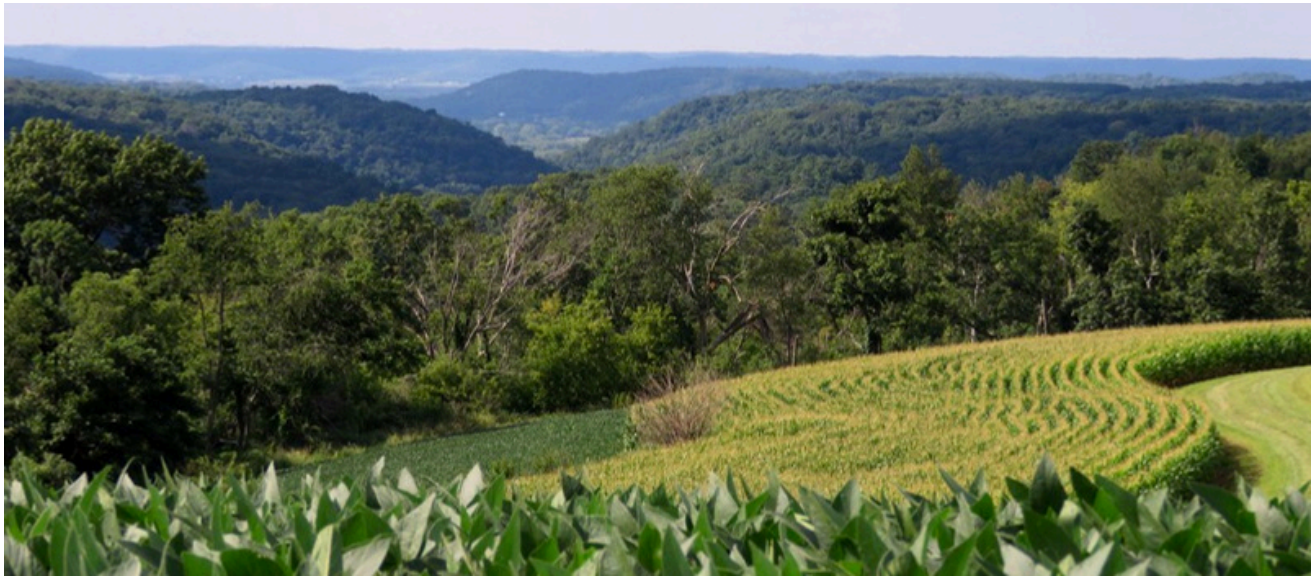


Figure 13



Pleasant Ridge, Dodgeville, WI - Mary Kay Baum

Cows in a stream - Sarah Hovis

DEGRADED WATERS

DNR's 2013 Nutrient Reduction Strategy designated priority subwatersheds (HUC12) for addressing phosphorus, nitrogen, and groundwater concerns. Of the 48 subwatersheds in Iowa County, 29 have one or more of these designations. (figure 14).

156 miles of streams (8.7%) are listed as impaired under the 303(d) section of the Clean Water Act, not including the Wisconsin River. Most (88.5%) of the impaired miles are caused by excess phosphorus, followed by sediment (18.8%) and ammonia (9.7%) [some streams have multiple impairment causes, so percentages will not total 100]. About six miles of stream are impaired due to metals from historic mining waste, and 12 miles have an unknown cause. (See figure 15 and table 3). Two Total Maximum Daily Load (TMDL) plans are in place for sediment reduction on Otter Creek (2008) and Dodge Branch (2005).

The Wisconsin River flows for about 35 miles along Iowa County's northern border and is impaired due to polychlorinated biphenyls (PCBs). The four main lakes in the county are all impaired due to excess algae growth, likely from phosphorus.

WI DNR 2013 NUTRIENT REDUCTION STRATEGY PRIORITY WATERSHEDS IN IOWA COUNTY

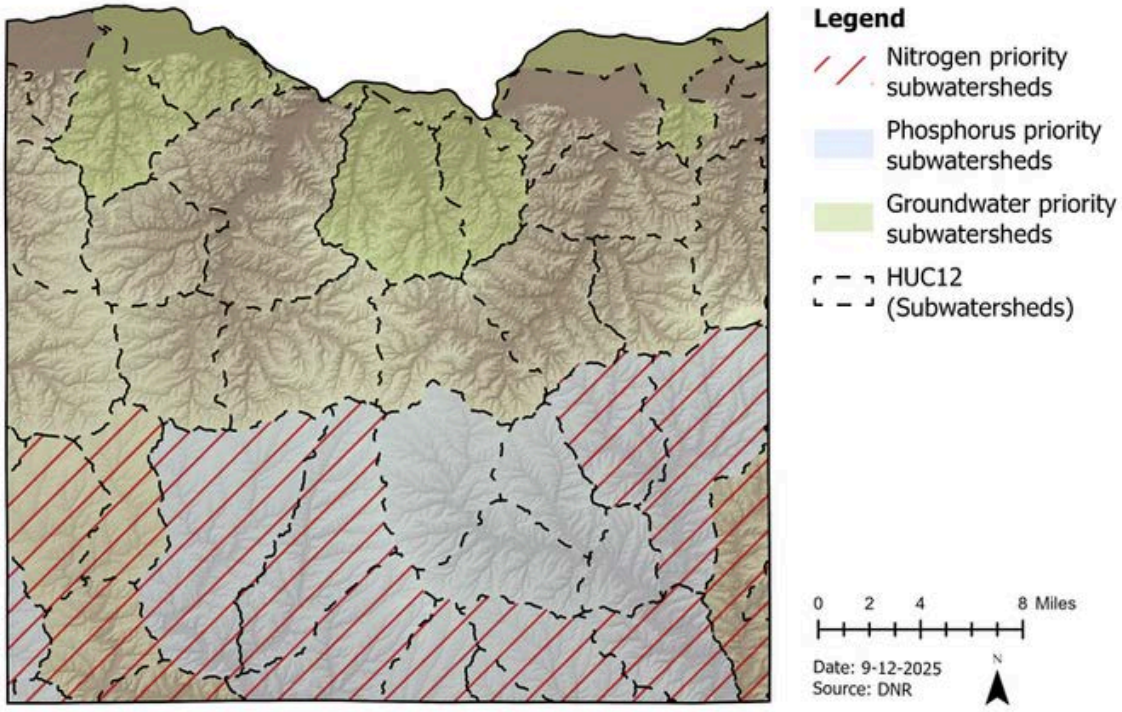


Figure 14

IMPAIRED WATERS MAP

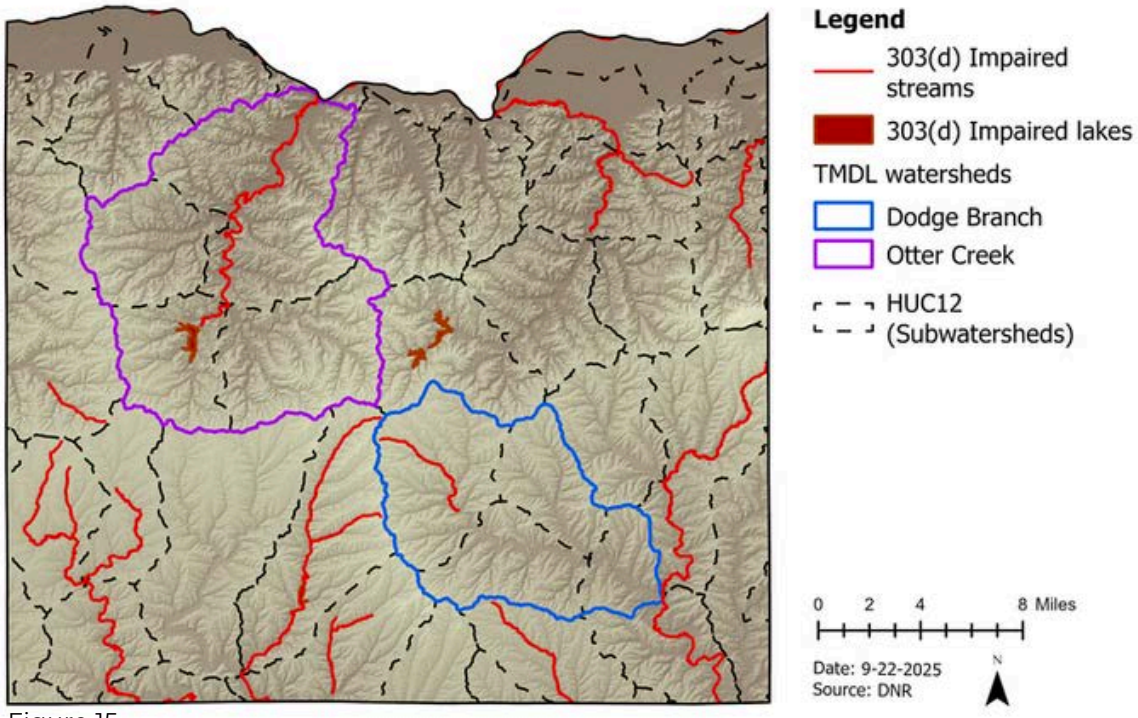
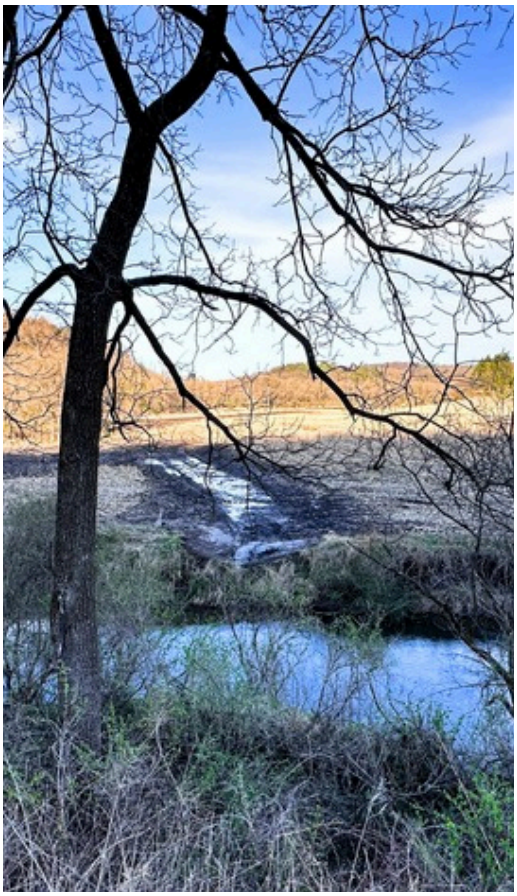


Figure 15

The phosphorus and sediment impairments are largely attributed to non-point source pollution from agriculture, although some point sources have been identified, mainly municipal wastewater treatment plants.

Many floodplains are overlain by several feet of sediment that eroded from slopes decades ago. This can lead to incised channels and eroding banks. Bank erosion is worsening with climate change and more frequent heavy rainfall, and may contribute significantly to both sediment and phosphorus loads in streams. A recent study by Iowa County, UW-Platteville, and UW-Madison Division of Extension estimated that cropland represented 39% and streambank erosion represented 61% of the Total P load to the Knight Hollow-Mill Creek subwatershed. While the study acknowledges its methodologies have limitations and its estimates are very rough indicators of phosphorus contributions in the watershed, its finding was in line with other Midwest research that indicates streambank erosion may be 25%-95% of annual watershed sediment loads. This makes bank stabilization an important practice, whether through shaping and adding rock, improving grazing practices, or installing riparian buffers.



No buffer on Mill Creek, Ridgeway - Mayme Keagy

HEALTHY WATERS

Wisconsin DNR has identified 30 miles of waterways in Iowa County as Outstanding or Exceptional Resource Waters, which are the highest quality in the state and have good water quality, wildlife habitat, and recreation opportunities. The Outstanding designation indicates there are no point pollution sources, while streams with an Exceptional designation do have existing point sources.

In DNR's 2021 Healthy Watersheds, High-Quality Waters (HWHQW) initiative analysis, no Iowa County subwatersheds were rated in the healthiest category at a statewide scale. Nine were in the top 10-30% of the Rock River drainage basin (HUC6 scale), however the scale and relative conditions of the Rock River and Wisconsin basins make this rating less useful for county-level prioritization. Instead, the HWHQW assessment's Watershed Health Index Score for each HUC12 subwatershed was used. Iowa County subwatersheds ranged in score from 71.2 to 29.8 out of 100, with a higher score indicating a healthier watershed.

In the HWHQW assessment, about 330 miles of streams in Iowa County were designated as high-quality. Healthy Watersheds were defined as "an area draining to a stream, lake or wetland where natural land cover supports the dynamic processes, habitat size and connectivity, and water quality conditions able to support healthy biological communities." High-Quality Waters were defined as having at least two of the following attributes: unique or rare resource, attaining state water quality standards, and good-to-excellent biotic integrity.

Iowa County supports about 78 miles of Class 1 trout streams and 187 miles of Class 2. Class 1 trout streams are high-quality trout waters that have enough natural reproduction to maintain wild trout populations and therefore do not require stocking. Class 2 trout streams do not have enough natural reproduction and require stocking to maintain fishery populations.

HIGH QUALITY STREAMS AND WATERSHEDS

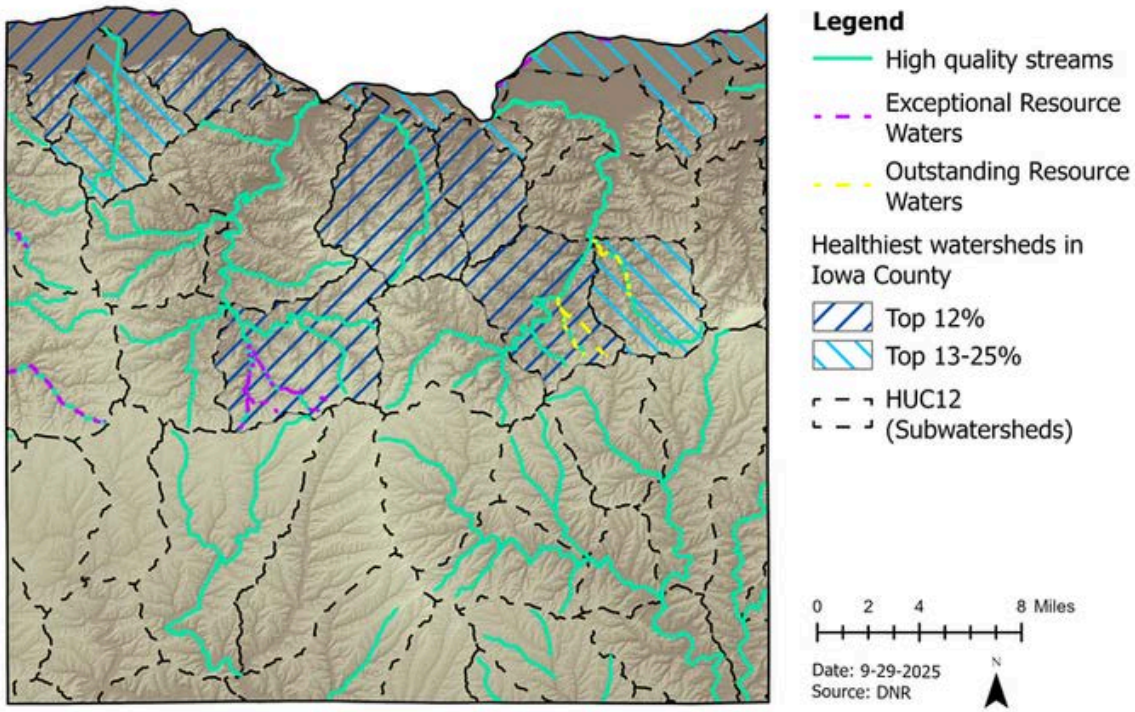


Figure 16

Some of the high-quality and trout stream designations overlap with impaired stretches. These assessments use different methods and parameters, may be conducted many years apart, and are not mutually exclusive. For example, Williams-Barneveld Creek is impaired for high phosphorus, but still supports trout populations and therefore carries both an impaired status and trout stream designation.

The following watershed information comes from the Department of Natural Resources. In general, watersheds are similar in having primarily nonpoint pollution sources from agriculture. Some also have point sources from municipal wastewater treatment plants or industrial facilities (such as cheese plants).

IOWA COUNTY TROUT STREAMS

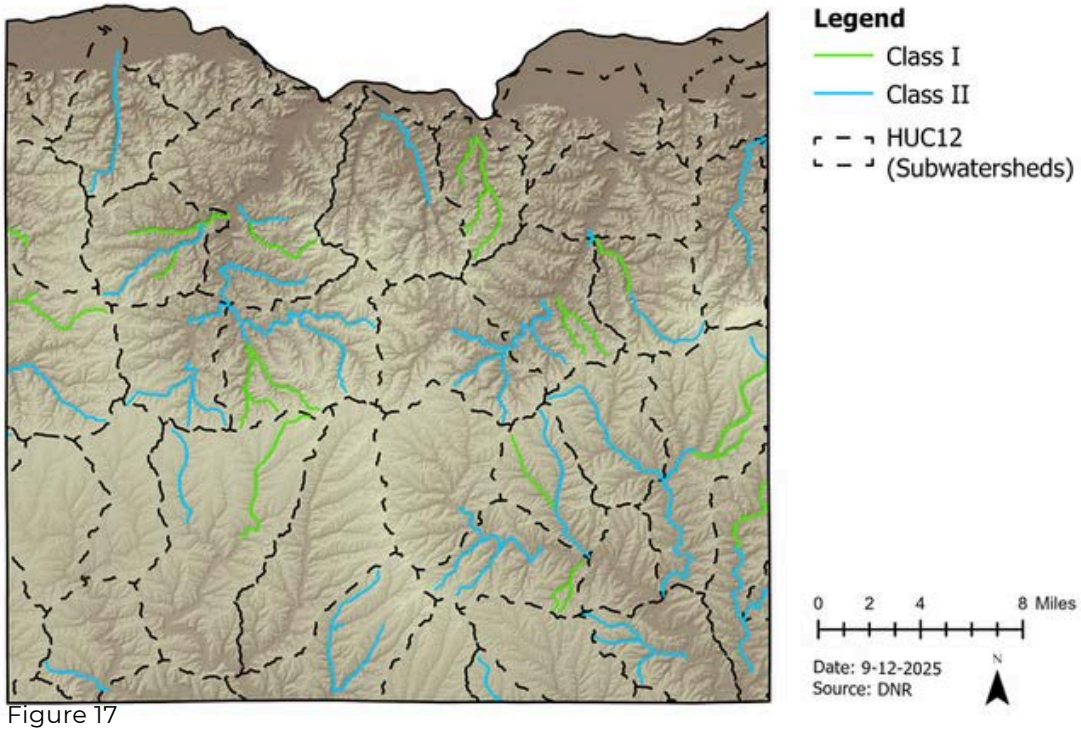


Figure 17

Brook Trout caught at Lowery Creek - DNR

LOWER WISCONSIN RIVER BASIN

The Lower Wisconsin River basin drains approximately 4,940 square miles of south-central and southwestern Wisconsin. The basin includes all or parts of 12 counties.

Water quality in the basin is generally considered good. The primary water quality problems are caused by nonpoint sources of pollution, particularly from agricultural operations, excessive populations of rough fish and hydrologic modifications such as dams, stream straightening and the ditching, draining or other alteration of wetlands.

MILL AND BLUE MOUNDS CREEK

Nonpoint source pollution problems in the Mill and Blue Mounds Creeks Watershed are not new. Historically, many of the streams in this system have had problems with severe flooding and in-stream siltation as a result of their high gradients and the surrounding land use. To address the problem of flooding, flood control structures were built on Mill Creek and its tributaries. While these structures have had some positive results with regard to flooding, these structures have caused problems in streams. The impoundments that result from the structures have organically rich bottom sediments and can warm water and decrease its quality. They can also negatively affect the macroinvertebrate community, increase the growth of periphyton and decrease the fish habitat. There is one permitted industrial point source in the watershed.

A 9 Key Element Watershed Plan was created in 2018 for the Knight Hollow and Meudt Creek HUC 12 subwatersheds. This ten-year plan focuses on reducing sediment, phosphorus, and nitrogen loading from non-point sources including cropland, livestock, and streambanks.

9-KEY ELEMENT WATERSHED PLAN PROJECT AREA

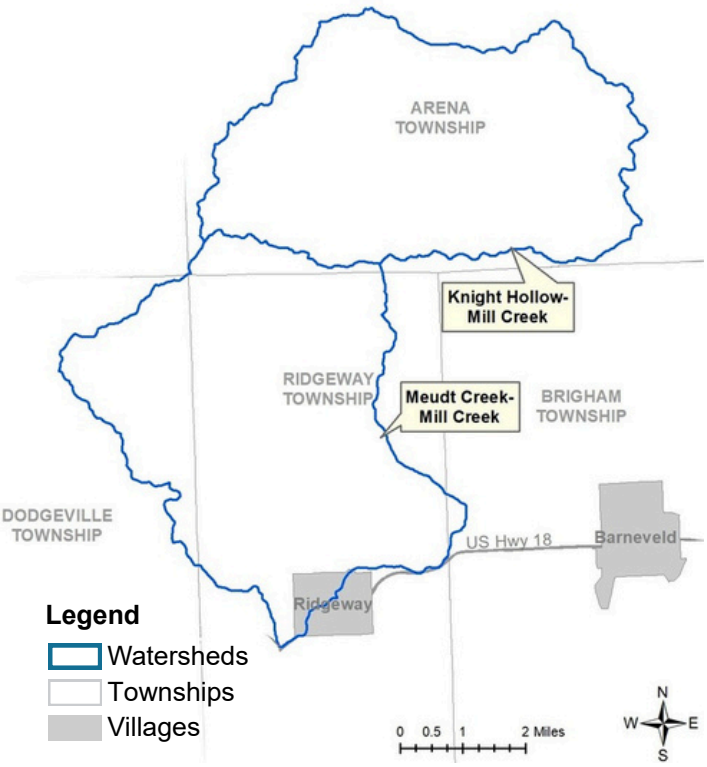


Figure 18

BLUE RIVER

The intensive agriculture in the watershed is a limiting factor. Barnyards and grazing may be causing in-stream habitat and water quality problems in the reach above the state fishery area. Eroding streambanks are also a problem in spots, and silt deposits in some pools and riffles are causing in-stream habitat problems. The headwaters of the Blue River have some problems with feedlots and are on the list of "impaired waters" due to nonpoint source pollution.

OTTER AND MORREY CREEKS

Overall, most of the streams support trout, although nonpoint sources of water pollution are suspected to affect water quality, habitat and recreational use. Overall, the majority of the watershed is broad-leaf deciduous forest and a significant number of acres are in woodland. Agriculture is the second most dominant land use in the watershed. There are large wetland complexes along the Wisconsin River particularly near Avoca, which are very important for wildlife. Away from the Wisconsin River floodplain there are few wetlands and most of them are wet meadows which are grazed or cultivated adjacent streams. Flooding in the watershed was perceived as a problem and as a result numerous flood control structures were constructed on streams in the watershed. These structures have since had a negative impact on aquatic habitat.

Otter Creek has an approved TMDL (2008) for sediment reduction. The TMDL plan specifies excessive grazing and eroding banks as sources of significant sedimentation. Excess sediment is deposited in the stream bed, covering the substrate and reducing habitat for fish and macroinvertebrates.

Winding creek in Iowa County

SUGAR-PECATONICA + GRANT-PLATTE BASINS

The Grant-Platte/Sugar-Pecatonica basin is actually two basins clumped together for the purposes of planning for and managing the resources.

Water quality in the Grant-Platte/Sugar-Pecatonica basin is generally fair to good. The primary water quality problems are the result of nonpoint sources of pollution, particularly from agricultural operations and urban runoff - excessive populations of rough fish and hydrologic modifications such as dams, stream straightening and ditching, draining or other alterations of wetlands.

Streams in the Sugar-Pecatonica basin support several rare fish species that are declining within their range. Effective nonpoint source controls are essential to the protection of these species.

UPPER WEST BRANCH PECATONICA RIVER

The Upper West Branch Pecatonica River watershed is in southwestern Iowa and northwestern Lafayette counties. The principal land use in the watershed is agricultural, dominated by row crop cultivation. The watershed ranks high for non-point pollution control. Two small municipalities discharge to surface water in the watershed. The population is not expected to grow significantly over the next 20 years in this predominantly rural area.

UPPER EAST BRANCH PECATONICA RIVER

Over half of the land use in the watershed is agricultural with some woodlots along valleys and creeks. Four municipalities border the northern edge of the watershed and discharge to surface waters within the watershed. The village of Hollandale also lies in the southcentral portion of the watershed and discharges to the Dodge Branch. Development along the northern edge of the watershed could affect the water quality of some of the headwater streams. Although there are problems caused by non-point source pollution and streambank pasturing, there are 15 streams in the watershed with portions of their length able to support trout, totaling 73.58 miles. Excess sedimentation and habitat degradation are the major impacts in the watershed.

The Ridgeway Branch - East Branch Pecatonica River HUC 10 was assessed as part of a Targeted Watershed Assessment (TWA) project in 2020 and 2021. The Dodge Branch HUC10 watershed has an approved TMDL (2005) for sediment reduction, as part of the larger Sugar-Pecatonica River Basin TMDL.

GORDON CREEK

The watershed is impacted by agricultural nonpoint source pollution and ranks high in priority for nonpoint source pollution abatement. Three creeks in the watershed are on the state's list of impaired (303d) waters. However, the water quality in the watershed has improved as more land is set aside for the Conservation Reserve Program (CRP) and the Conservation Reserve Enhancement Program (CREP) and other forms of grassland management. Although the population of this rural watershed is not expected to grow significantly, development pressures and factory-style farming could threaten these improvements.

YELLOWSTONE RIVER

The Yellowstone River Watershed is located in southeastern Iowa county and northeastern LaFayette County and is 36,772 acres in size. The watershed contains 159 miles of streams and rivers, nine acres of lakes and 636 acres of wetlands. The watershed is dominated by agriculture (60%), forest (26%) and grassland (11%) and is ranked high for nonpoint source issues affecting streams and groundwater and medium for nonpoint source issues affecting lakes. The Yellowstone River was the subject of a WDNR 2016 Targeted Watershed Assessment (TWA) report that assessed conditions of streams in the watershed.

MINERAL POINT AND SUDAN BRANCHES

The majority of the Mineral Point and Sudan Branches is agriculture (row crops or pastureland), with scattered woodlands and grasslands making up a majority of the balance. The major water quality problems in the watershed are from agricultural nonpoint source pollution. Additionally, mining was a major industry in the Mineral Point area. Waste piles that remain from lead, zinc, and copper mining as well as runoff from mines has degraded water quality, especially for Brewery Creek. A Targeted Watershed Assessment (TWA) report was completed in 2017 and discusses recommendations to improve or protect water quality within the watershed.

Pecatonica River, Montfort, WI Mayme Keagy

WATERSHED SUMMARY

				Miles within Iowa County				
Basin	DNR watershed management unit	Total watershed area (sq mi)	Area in Iowa Co (sq mi)	Impaired	Class I Trout	Class II Trout	ERW or ORW	High-quality
LOWER WISCONSIN	Otter and Morrey Creeks	198.7	198.7	19.9	34.4	56.8	12.5	100.6
	Mill and Blue Mounds Creek	186.7	151	27.7	10.4	33.3	10.4	57
	Blue River	216.2	56	3.2	7.6	5.6	7.3	24.1
	Roxbury Creek	71.1	2.6	-	-	-	-	-
	Black Earth Creek	105.2	1.7	-	-	-	-	2.4
SUGAR-PECATONICA AND GRANT-PLATTE	Upper East Branch Pecatonica River	140.2	137.6	34.7	18.9	54.6	-	82.6
	Mineral Point and Sudan Branches	108.3	101.3	28.6	8.1	15.9	-	33.5
	Upper West Branch Pecatonica River	77.8	58.4	35.7	-	3.8	-	-
	Yellowstone River	57.5	21.4	6.8	-	2.8	-	11.9
	Gordon Creek	76.9	19.5	-	4.9	10.2	-	16.8
	Middle Pecatonica River	186.4	10.3	-	-	-	-	-
	Little Platte River	154.9	7.8	-	-	-	-	-
	Platte River	197.7	1	-	-	-	-	0.3
	Totals		**767.3**	**156.6**	**84.3**	**183**	**30.2**	**329.2**

Table 2

DETAILS OF IMPAIRED WATERWAYS

Waterbody Name	Size Mi/Ac	Cycle Listed	Source	Pollutants (Causes)	Impairments (Observed Effects)	TMDL Priority	Watershed Name
Blue River	3.2	1998	NPS	Total Suspended Solids (TSS)	Degraded Habitat	Low	Blue River
Brewery Creek	3.3	2018	PS/NPS	Cause Unknown, Lead, Zinc	Degraded Biological Community, Chronic Aquatic Toxicity	Low	Mineral Point and Sudan Branches
Dodge Branch	6.3	2016	PS/NPS	total Phosphorus, Sediment	Degraded Biological Community	Medium	Upper E. Branch Pecatonica River
East Branch Pecatonica River	20.3	2014	PS/NPS	Total Phosphorus	Impairment Unknown	Low	Upper East Branch Pecatonica River
Livingston Branch	11.6	1998	NPS	Ammonia, Un-Ionized, BOD, Phosphorus	Chronic Aquatic Toxicity, Low DO, Degraded Biological Community	Low	Upper W. Branch Pecatonica River
Marsh Creek	0.2	2018	PS/NPS	Cause Unknown	Degraded Biological Community	Low	Roxbury Creek
Mill Creek	15.8	2012	NPS	Total Phosphorus	Impairment Unknown	Low	Mill and Blue Mounds Creek
Mineral Point Branch	18.7	2014	NPS	Total Phosphorus	Degraded Biological Community	Medium	Mineral Point and Sudan Branches
Otter Creek	19.9	2014, 2016	NPS	Total Phosphorus, Cause Unknown, Sediment	Impairment Unknown, Elevated Water Temperature, Degraded Habitat	Low	Otter and Morrey Creeks
Pecatonica River	20.6	2012	NPS	Total Phosphorus	Impairment Unknown	Low	Upper W. Branch Pecatonica River
Ryan Creek	4	2024	NPS	Total Phosphorus	Degraded Fish Community	Medium	Mill and Blue Mounds Creek
Unnamed trib to Brewery Creek	2.3	1998	PS/NPS	Cadmium, Lead, Mercury, Zinc	Acute Aquatic Toxicity	Low	Mineral Point and Sudan Branches
Unnamed trib to Livingston Br	3.5	1998	NPS	Ammonia, Un-Ionized, BOD, Phosphorus	Acute Aquatic Toxicity, Low DO, Degraded Biological Community	Low	Upper W. Branch Pecatonica River
Unnamed trib to Mineral Pt Br	3.9	2018	NPS	Cause Unknown	Degraded Biological Community	Low	Mineral Point and Sudan Branches
West Branch Blue Mounds Creek	7.7	2018	NPS	Total Phosphorus	Impairment Unknown	Low	Mill and Blue Mounds Creek
Williams-Barneveld Creek	8.1	2024	PS/NPS	Total Phosphorus	Impairment Unknown	Medium	Upper E. Branch Pecatonica River
Wisconsin River	34.8	1998	Contam. Sed.	Polychlorinated Biphenyls (PCBs)	PCBs Contaminated Fish Tissue	Low	Otter and Morrey Creeks
Yellowstone River	6.8	2018	NPS	Total Phosphorus	Degraded Biological Community	Medium	Yellowstone River
Blackhawk Lake	212.5	2024	NPS	Cause Unknown	Excess Algal Growth	Low	Otter and Morrey Creeks
Twin Valley Lake	135.9	2016	NPS	Cause Unknown	Excess Algal Growth	Low	Mill and Blue Mounds Creek
Ludden Lake	56.3	2018	NPS	Total Phosphorus	Eutrophication, Excess Algal Growth	Medium	Mineral Point and Sudan Branches
Cox Hollow Lake	81.5	2016	NPS	Cause Unknown	Excess Algal Growth	Low	Mill and Blue Mounds Creek

Table 3

GROUNDWATER

Groundwater is abundant in Iowa County, located in two aquifers separated by an impervious shale aquitard (the Glenwood shale- figure 19). Groundwater is the source of drinking water for Iowa County, but our shallow soil and karst-prone bedrock make it susceptible to contamination. The majority of the county is considered either highly or most susceptible to groundwater contamination based on a 2010 analysis by the Wisconsin Geological and Natural History Survey (figure 20). The analysis was based on type of bedrock, depth to bedrock, depth to water table, and groundwater recharge.

CROSS SECTION OF GEOLOGIC UNITS IN A TYPICAL STREAM VALLEY IN SOUTHWEST WISCOSIN

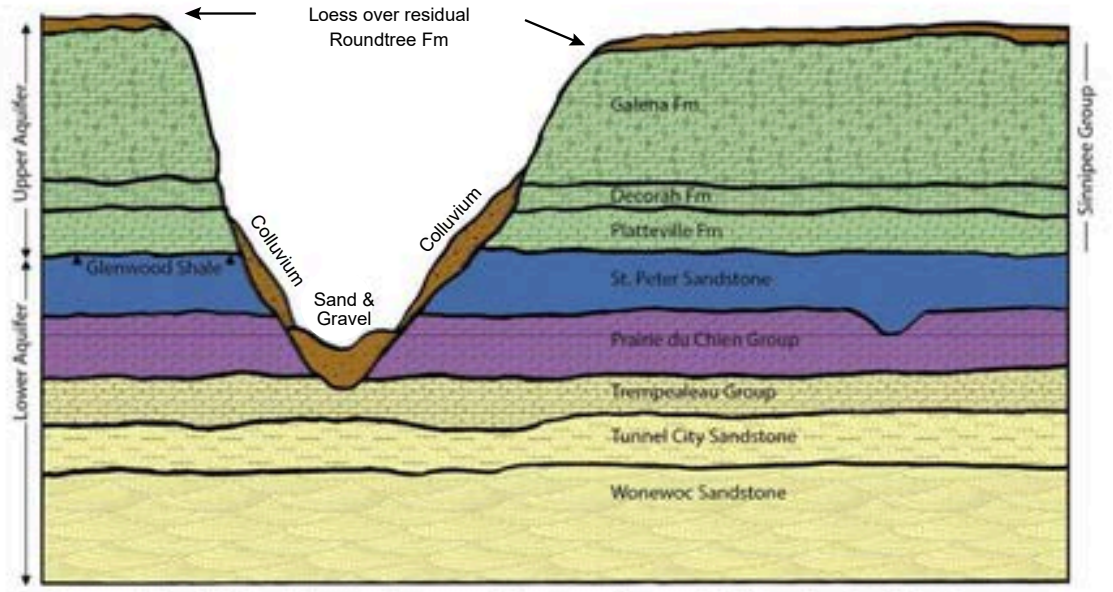


Figure 19 Source: Assessing Private Well Contamination in Grant, Iowa, and Lafayette Counties, Wisconsin: The Southwest Wisconsin Groundwater and Geology

The main groundwater contamination concerns in Iowa County are nitrate and bacteria. High levels of nitrate are equal to or greater than 10 milligrams nitrate-nitrogen per liter (mg/L). In babies, high nitrate can cause blue baby syndrome, which affects how the blood carries oxygen leading to weakness, excess heart rate, fatigue, and dizziness. For pregnant women, nitrate can increase the risk of birth defects in the brain and spinal cord. In all people, nitrate may increase the risk of thyroid disease and colon cancer.

Bacteria testing commonly looks for total coliform and *Escherichia coli (E. coli)*. While most bacteria do not affect our health, some bacteria can cause flu-like illnesses, especially in young children, people with weakened immune systems, and the elderly. When total coliform bacteria are found, the well is at risk for more serious forms of contamination. When *E. coli* bacteria are found, the well may be contaminated with human or animal waste.

GROUNDWATER SUSCEPTIBILITY MAP

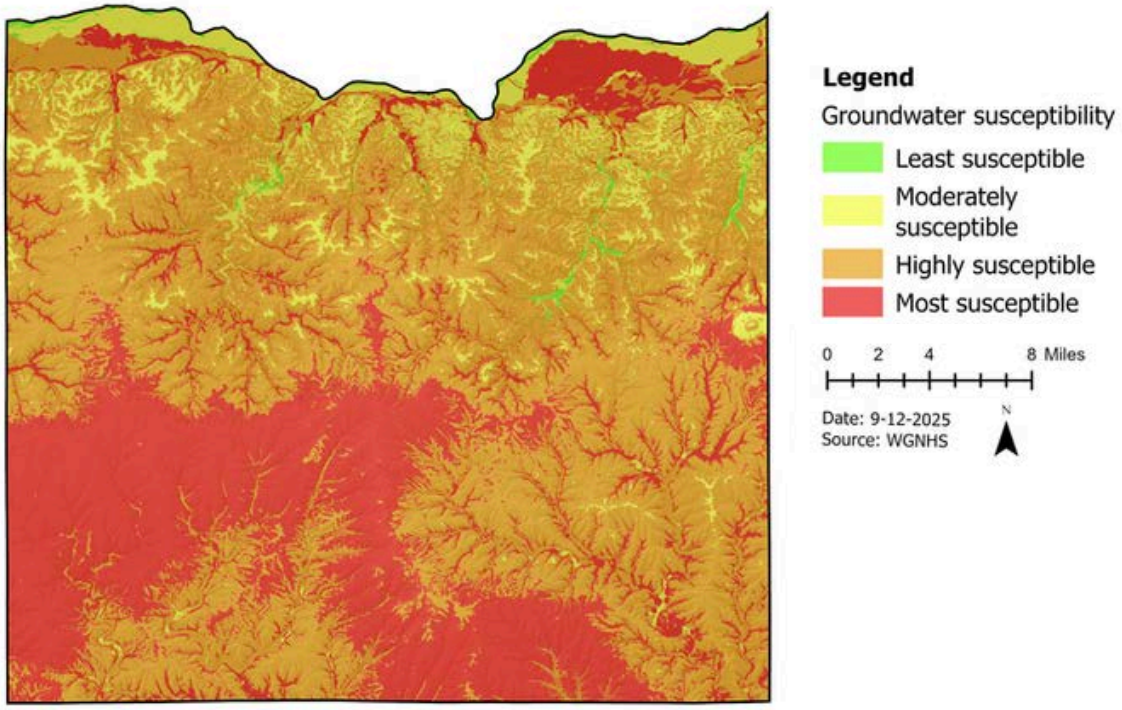


Figure 20

In the 2022 study *Assessing Private Well Contamination in Grant, Iowa, and Lafayette Counties, Wisconsin: The Southwest Wisconsin Groundwater and Geology Study*, researchers found that "overall, 126 (42%) of 301 wells sampled in November 2018 and 145 (27%) of 539 wells sampled in April 2019 were positive for total coliform bacteria and/or had nitrate greater than the Wisconsin and U.S. Environmental Protection Agency health standard (10 mg nitrate-nitrogen per liter). The percentage of study wells with total coliforms or high nitrate was generally greater than statewide percentages for private wells."

Researchers conducted further tests that distinguished between contamination from human, cattle, or pig fecal sources. "Human wastewater was detected in 64 wells, cattle manure was detected in 33 wells, and pig manure was detected in 13 wells, indicating that both human wastewater and livestock manure contribute to private well contamination." Human wastewater indicates septic systems are causing some bacterial contamination.

"Well characteristics, well siting, geology, rainfall, and groundwater levels were examined for relationships to the contaminants. These factors affect the tendency for contaminants to reach groundwater or enter wells. Nitrate contamination was generally greater where the geology allows rapid flow of water and contaminants. Microbial contamination was generally greater following periods of rainfall and where bedrock is closer to the surface. Both nitrate and microbial contamination were generally greater for older, shallower wells."

In Iowa County, high nitrate results were found mainly in the southern half of the county, where groundwater susceptibility is higher and more land is cultivated, as well as the Wisconsin River floodplain, which has sandy soils and shallow wells. Bacteria contamination was found throughout the county.

Well depth and design were important to contamination risk. Wells open to the upper aquifer had a higher risk of being contaminated than wells that were only open to the lower aquifer. This means, for deep wells, deep casing is important to block water from the upper aquifer, and also to not allow upper contaminated water to flow into the lower aquifer.

RESULTS FROM THE SWIGG STUDY

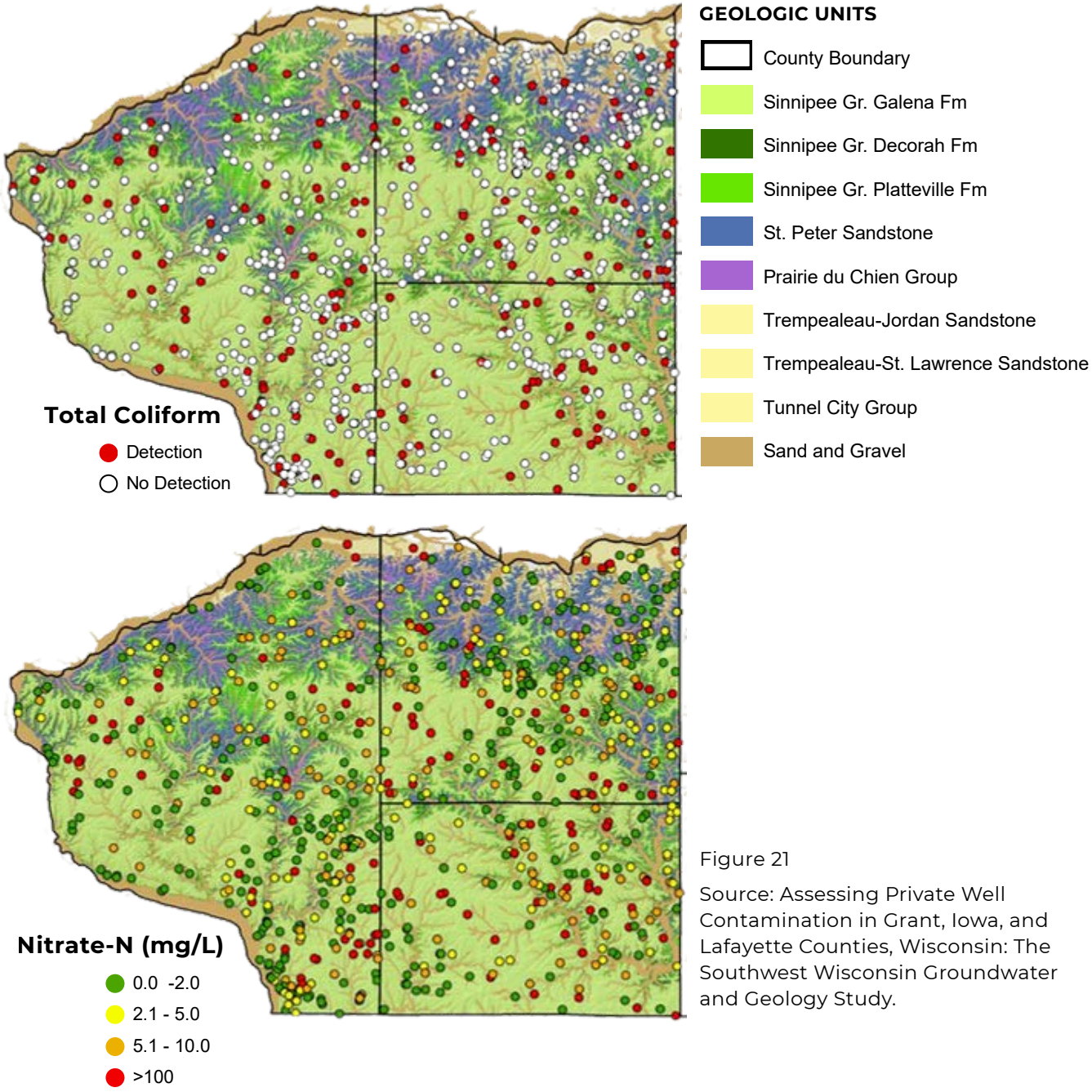


Figure 21

Source: Assessing Private Well Contamination in Grant, Iowa, and Lafayette Counties, Wisconsin: The Southwest Wisconsin Groundwater and Geology Study.

AVERAGE PRIVATE WELL NITRATE LEVELS

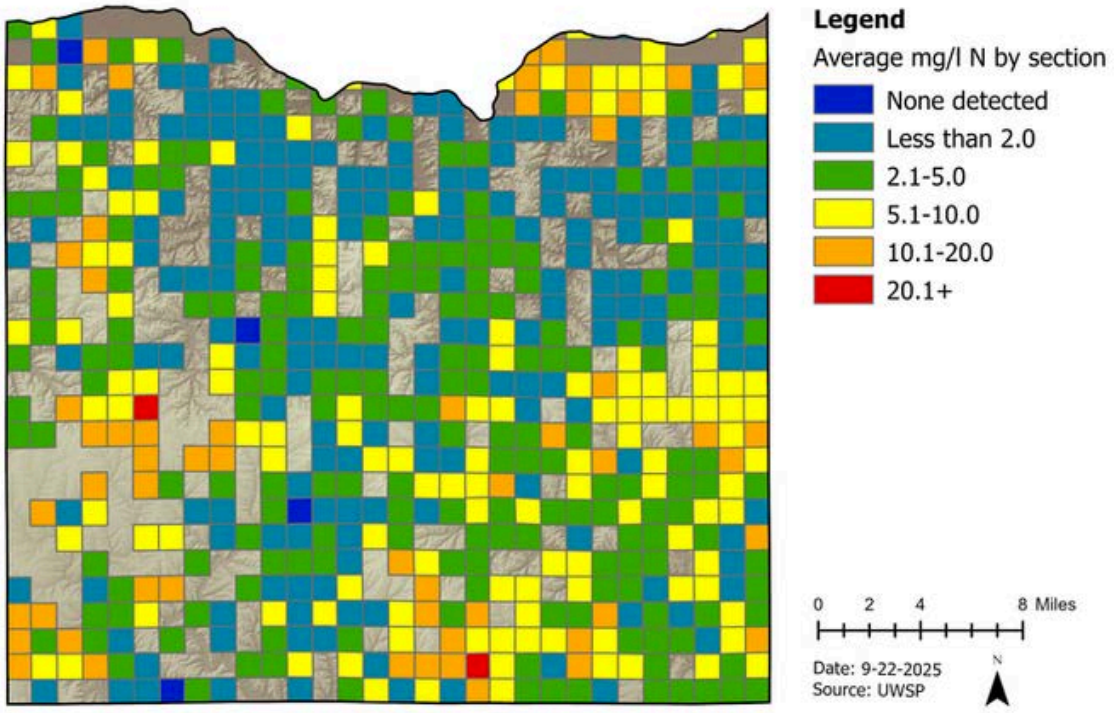


Figure 22

This groundwater quality summary is based on private well samples that were submitted voluntarily and are not a statistically random distribution for the county.

AVERAGE PRIVATE WELL NITRATE LEVELS

Range	# of Samples	Percent Total	Summary
None Detected	444	13%	Minimum: 0.00
Less than 2.0 mg/l as N	1,131	32%	
2.1 - 5.0	844	24%	Median: 2.57
5.1 - 10.0	634	18%	Average: 4.49
10.1 - 20.0	350	10%	
20.1+	98	3%	Maximum: 46.60
Total Samples	**3,501**		
> 10mg/l N	448	13%	Exceeds Health Standard

Table 4 Source: UWSP Center for Watershed Science and Education, Public Web Mapping Service Sep 22, 2025

Iowa County will continue well monitoring efforts by partnering with the Iowa County Health Department, which started an in-house bacteria testing lab in 2023. The University of Wisconsin-Stevens Point's Center for Watershed Science and Education also has publicly available data, including nitrate and bacteria test results, on their WI Well Water Quality Viewer (figure 22). Iowa County staff will use both in-house and UWSP data to monitor long-term trends in well water quality.

In 2020 and 2021, the DNR began working on revising the NR151 administrative rule to add targeted performance standards aimed at reducing nitrate in groundwater in areas of the state that are susceptible to groundwater contamination. The update rule was not approved by legislature, but information and maps that were produced are helpful in prioritizing areas for groundwater protection efforts. (figure 23)

Nitrogen restriction areas from NR151 proposed revisions:

- Nitrogen Restricted Areas: a portion of the proposed targeted area that is based on groundwater data.
- Liquid Manure Restriction Areas: where a restriction on fall-season land applications of liquid manure would have applied.
- Proposed Targeted Areas: where the proposed standards and prohibitions would have applied.

PROPOSED NITROGEN RESTRICTION AREAS MAP

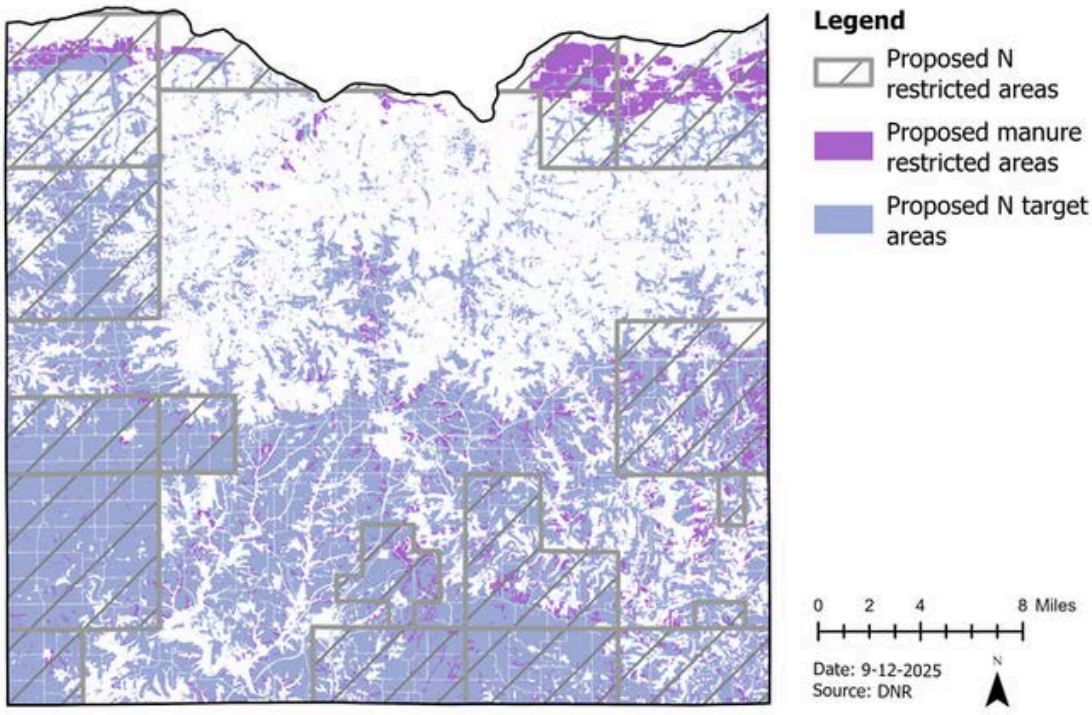


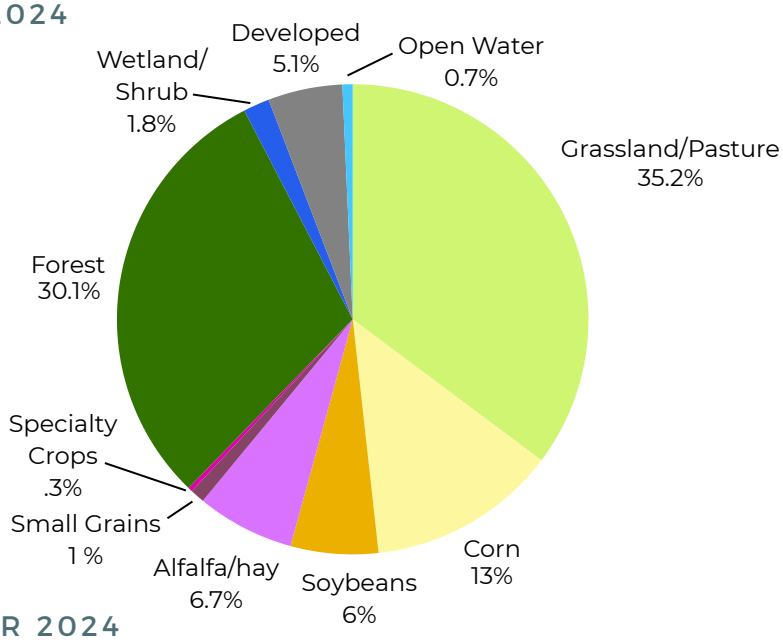
Figure 23

LAND USE + AGRICULTURE

Land cover in Iowa County is split nearly equally between cultivated land, pasture/grassland, and forests, with a small percentage of developed area (about 5%) and other natural areas like wetland, shrubland, and open water (2.5%). (figure 24)

The primary agricultural uses in Iowa County are corn, soybeans, pasture, and forage. Livestock operations are primarily dairy or beef cattle. A small number of farms raise organic meat, goats or sheep, vegetables, small grains, or specialty crops like Christmas trees or apples. Potatoes and green beans are often planted in the flat sandy soils near the Wisconsin River.

LAND USE 2024



LAND COVER 2024

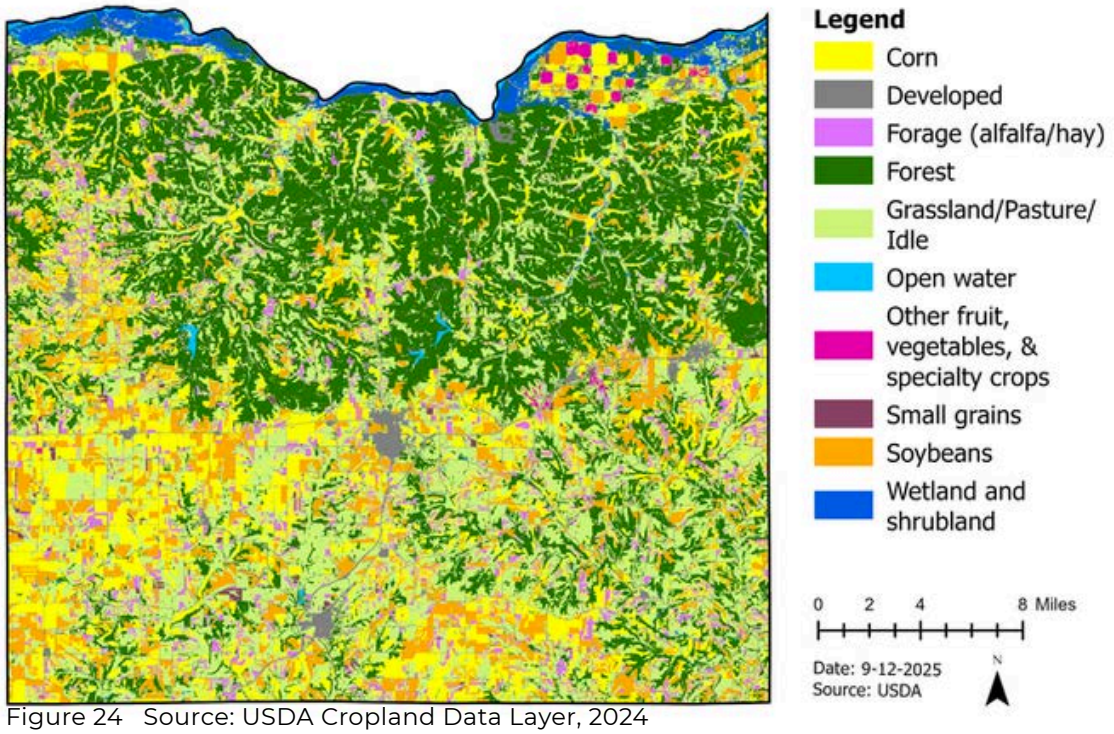


Figure 24 Source: USDA Cropland Data Layer, 2024

Between 2002 and 2022, the total number of farms decreased by 9%, lower than the overall loss of farms in Wisconsin of 24%. The number of dairy farms dropped by 65.2%, while beef farms increased by 26.7%. The loss of dairy farms has corresponded to changing land cover. Overall cropland acres have remained relatively stable. Corn silage and forage acres have decreased, pasture has increased slightly, and corn grain and soybeans acres have increased. (table 5). Much of the increase in corn and soybeans has likely been land that came out of the Conservation Reserve Program, which decreased by over 50%.

CROP TYPE BY ACRE AND NUMBER OF FARMS 2002 - 2022

Crops in acres	2002	2007	2012	2017	2022	Change Percentage 2002-2022
Pasture	54,067	65,570	65,208	57,300	59,015	9.2%
Corn Grain	51,915	56,937	59,049	63,602	71,969	38.6%
Corn Silage	11,882	11,381	19,910	10,569	10,155	-14.5%
Soybeans	25,170	24,336	27,737	46,913	44,580	77.1%
Forage	59,342	54,692	51,795	47,341	49,993	-15.8%
CRP	39,801	42,761	23,634	23,230	18,175	-54.3%

Number of Farms	2002	2007	2012	2017	2022	Change Percentage 2002-2022
Total Farms	1,686	1,813	1,588	1,576	1,534	-9.0%
Beef	337	388	383	445	427	26.7%
Dairy	345	289	224	178	120	-65.2%

Table 5 Source: USDA Census of Agriculture

FARM SIZES BETWEEN 2002 AND 2022

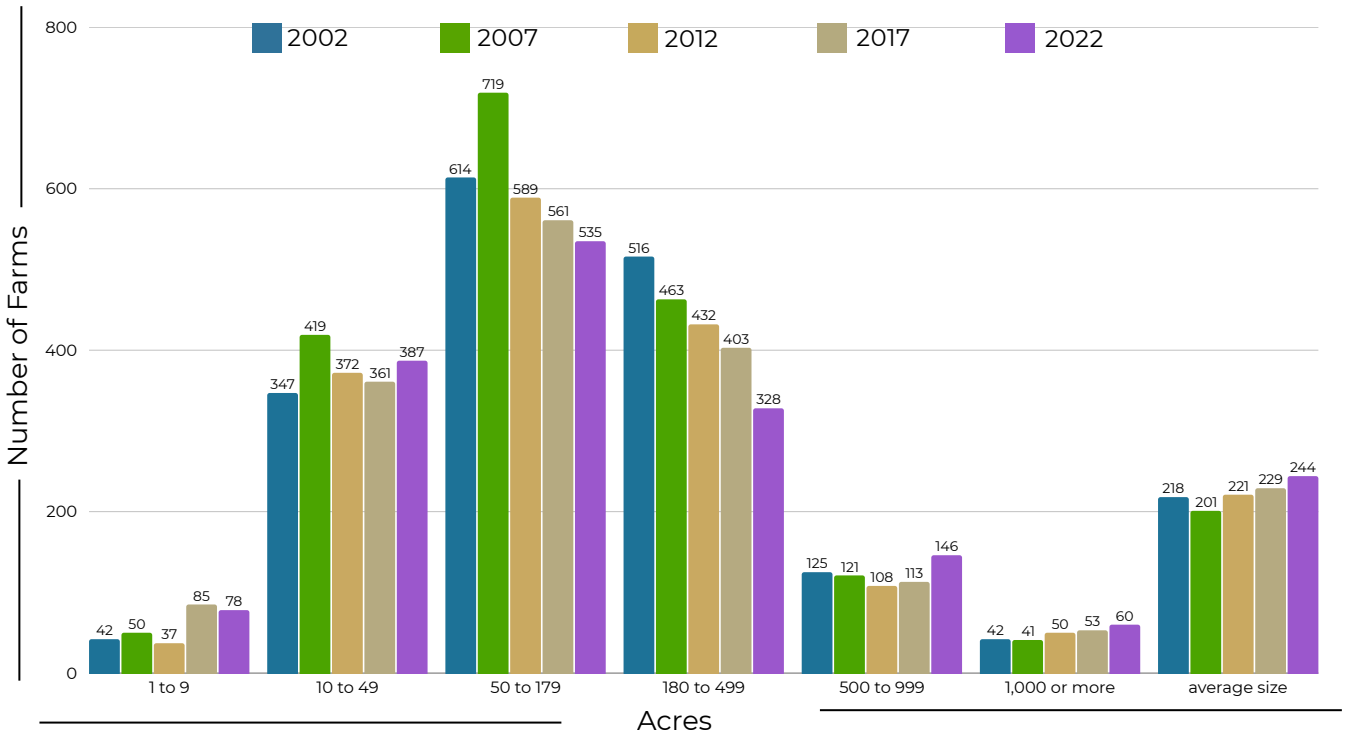


Figure 25 Source: USDA Census of Agriculture

While the number of farms and farm sizes fluctuated with each agriculture census, overall, the most significant loss occurred in mid-size farms (50 to 499 acres). Both smaller and larger farms increased moderately between 2002 and 2022. The average farms size increased by 11.9% (figure 25). Iowa County has not experienced significant pressure from large Concentrated Animal Feeding Operations (CAFOs) that some other counties have felt. Currently, there are only two identified and permitted CAFOs in the county, though one is depopulated.

Corn Cribs, Dodgeville, WI -Mayme Keagy

LAND COVER CHANGES BETWEEN 2002 - 2024

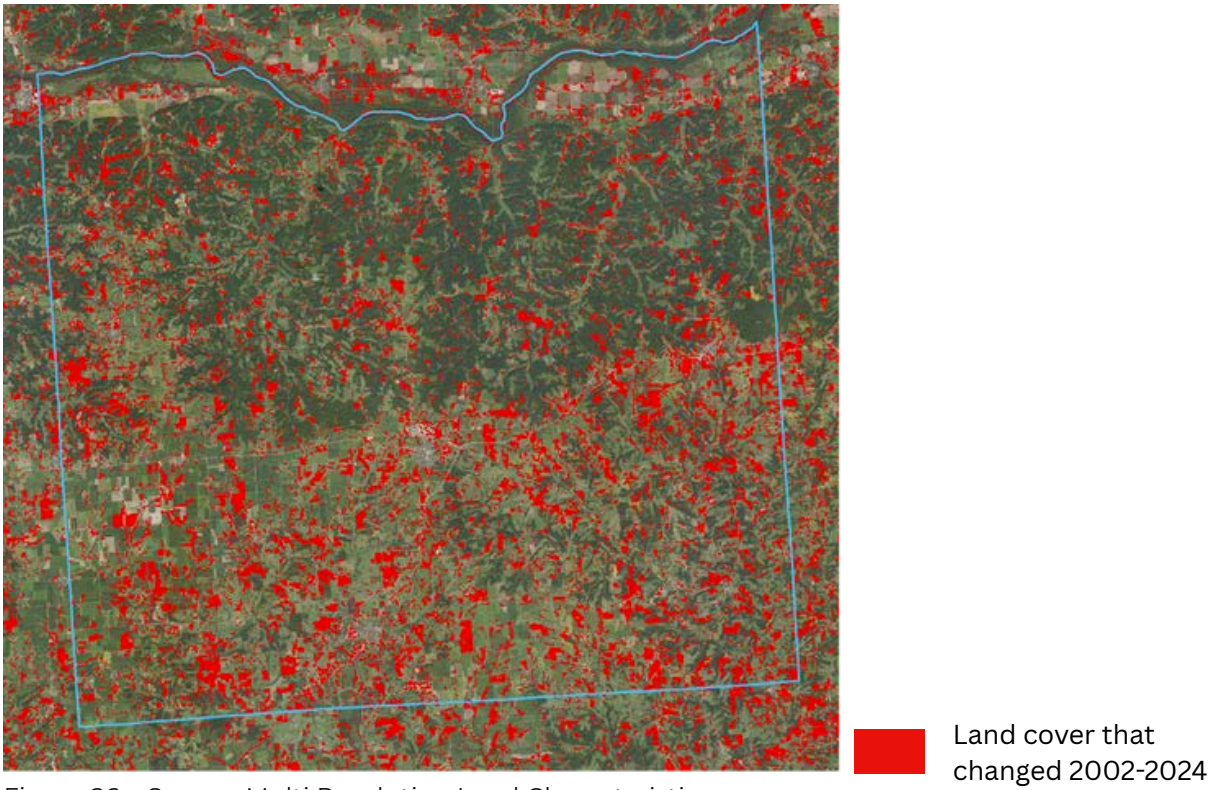


Figure 26 Source: Multi Resolution Land Characteristics Consortium (MRLC). The MRLC produces the National Landcover Database (NLCD).

Development pressure, and therefore loss of farmland, is stronger on the eastern side of the county, closer to large urban cities of Madison and Verona. According to the National Land Cover Database, between 2002 and 2024 about 10.5% of Iowa County's land cover changed, with an increase in cultivated crops, decrease in pasture and hay, and increase in developed areas.

These changes have implications for conservation priorities. Soil erosion often increases when a former dairy farm's pasture and hay are converted to corn-soybean rotations due to more tillage and less perennial vegetation, although issues with manure and cattle in streams may decrease. Increased row cropping, along with more impermeable surfaces from development, reduces water infiltration during heavy rain, potentially increasing flooding issues. Beef cattle operations present an opportunity for conservation because they are often a better fit for rotational grazing than dairy cattle, which can improve pasture condition, soil health, and water infiltration.

CHANGE IN LAND COVER BETWEEN 2002 AND 2024

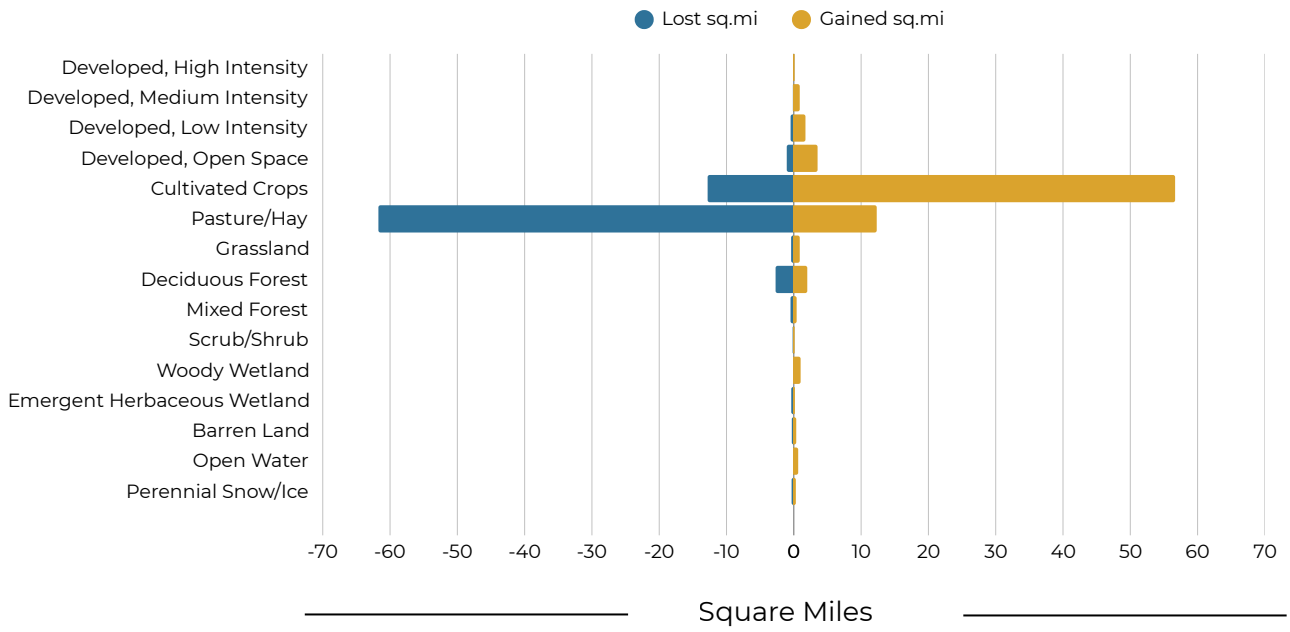


Figure 27 Source: National Land Cover Database (NLCD) Enhanced Visualization Analysis (EVA) Tool

LOSSES TO DEVELOPMENT BETWEEN 2002-2024

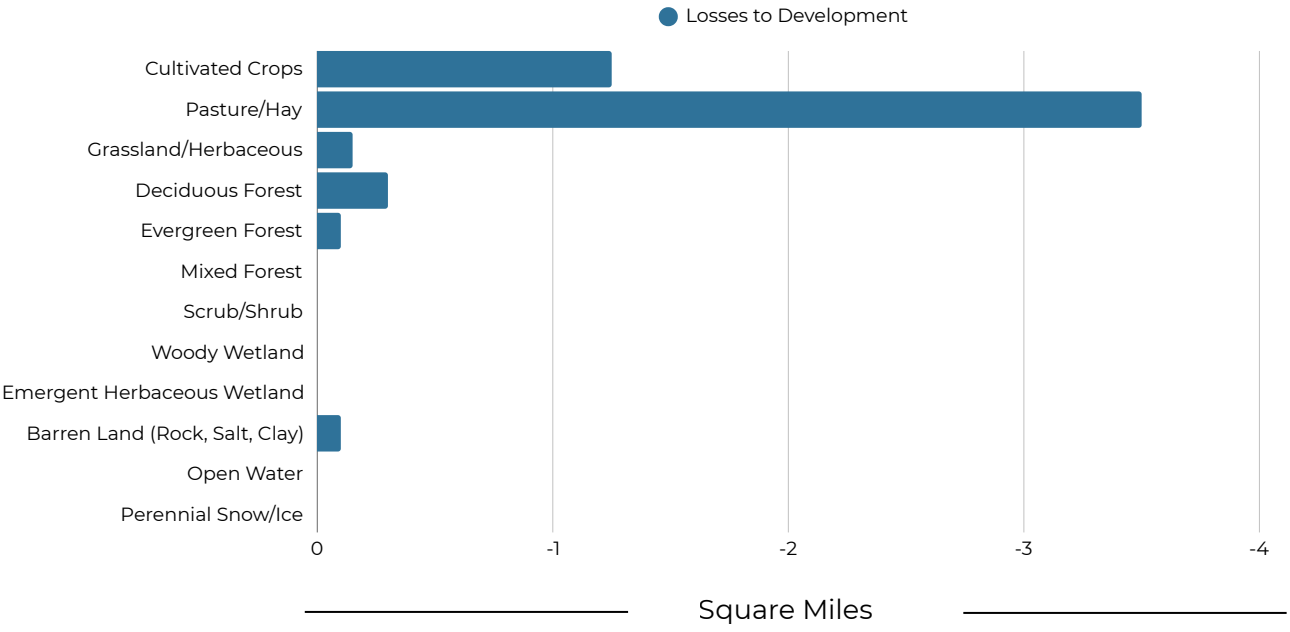


Figure 28 Source: National Land Cover Database (NLCD) Enhanced Visualization Analysis (EVA) Tool

ECOSYSTEMS + WILDLIFE

When glaciers began to melt and the climate became warmer, the vegetation in Iowa County shifted from conifer forests to oak woodland, oak savanna, and prairie. Frequent fires, whether caused by lightning or set by humans, kept the vegetation in a mosaic of open, grass-based ecosystems. Denser woods occurred in draws and cooler, north-facing slopes, and pine ecosystems clung to rock cliffs that are cooler and protected from fire- called "pine relicts." After European settlement, much of the prairie and savanna was plowed up and used for farmland, but the rolling hills have largely prevented fence-to-fence cropping, leaving some space for remnant habitat. Settlers and cropping also prevented fires, which resulted in many open habitats growing into thicker brush and trees.

Monarch caterpillar, monarch butterfly, milk snake, yellow garden spider, prairie on Esch Road, snapping turtle, grey tree frog -Mayme Keagy

ORIGINAL VEGETATION

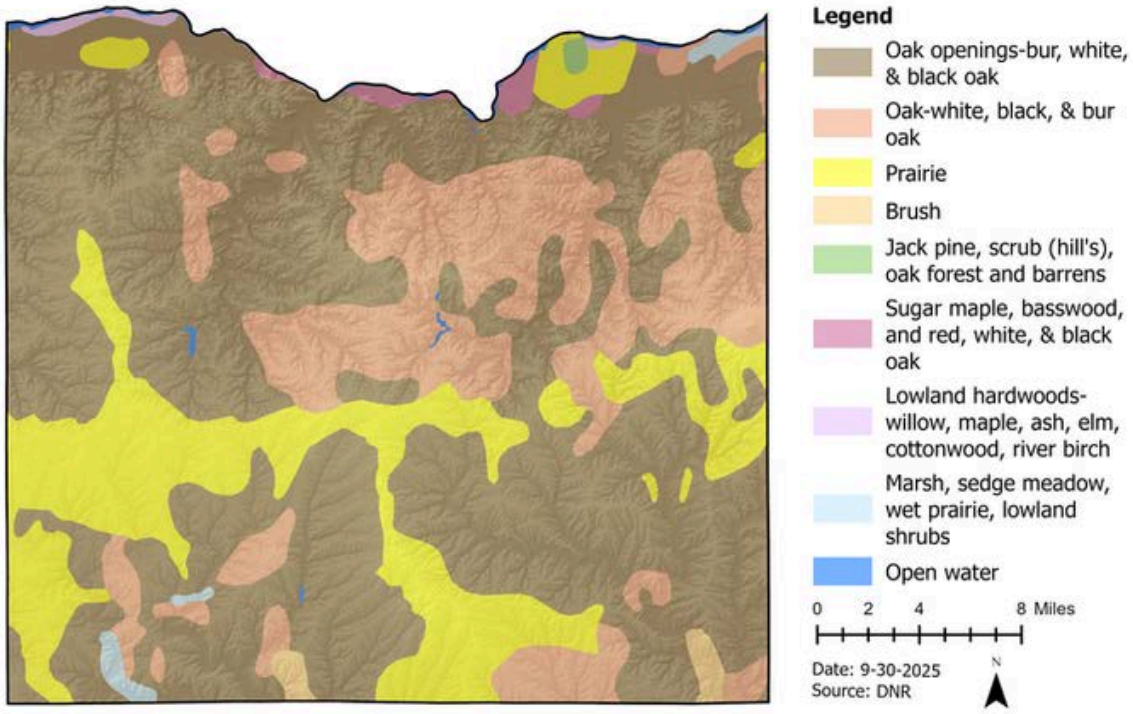
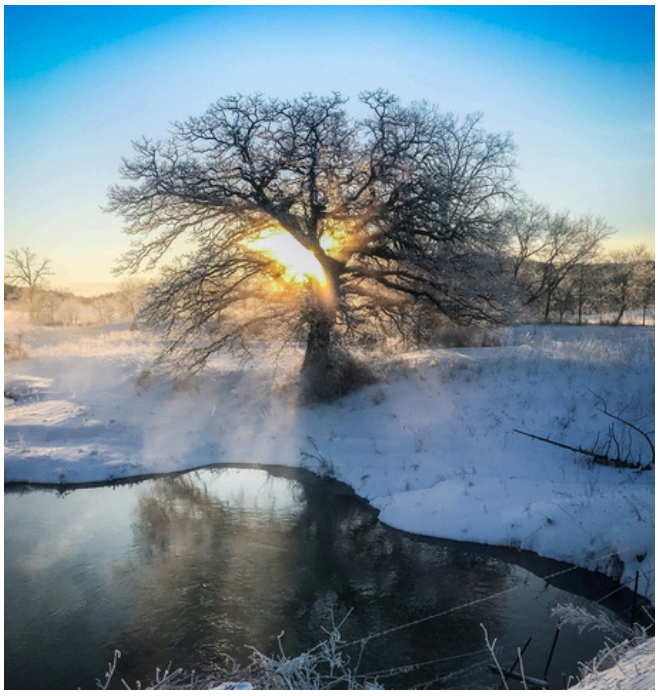


Figure 29

Today the majority of the forestland of Iowa County is found in the northern half of the county. Forests are typically southern dry (white and black oak dominant), dry-mesic (red oak dominant), or mesic (sugar maple dominant). Without disturbance like fire or harvest, many oak forests are shifting to shade-tolerant species like maple. Floodplain forests are found along the Wisconsin River.

There are very few wetlands in Iowa County compared to the rest of Wisconsin due to the topography and high-gradient streams. Wetlands are found in some floodplains, particularly of larger streams and rivers. Nineteen sites were considered high-quality wetlands in WI DNR's Healthy Watersheds, High-Quality Waters assessment. (figure 30) Of important note are wetlands along the Wisconsin River. The Lower Wisconsin Riverway is a Wetland of International Importance under the Ramsar Convention on Wetlands, designated for its wildlife and recreation values. The riverway includes wetlands habitats such as floodplain forest, marsh, and sedge meadow that support a variety of rare and sensitive species.



Bur oak by stream, Dodgeville, WI - Mayme Keagy

Fire-dependent ecosystems of prairie and oak savanna are some of the rarest in North America, with less than 0.1% remaining. Southwest Wisconsin, including southern Iowa County, is one of Wisconsin's best regions to manage these habitats at a landscape scale. Because many areas are too steep or rocky to plow, a relatively dense collection of never-plowed prairie patches (called remnants) and open-grown oak trees remain in this area, along with a high number of restored prairies.

Many streams in Iowa County are fed by groundwater recharge or springs, making them good coldwater fisheries that support brown or brook trout, especially in headwaters. However, abundance and reproductive success of the trout vary. Agricultural uses, wastewater treatment discharge, man-made dams, beaver dams, and eroding streambanks can negatively impact trout habitat.

Prescribed burn, Mineral Point, WI - Mayme Keagy

IOWA COUNTY WETLAND MAP

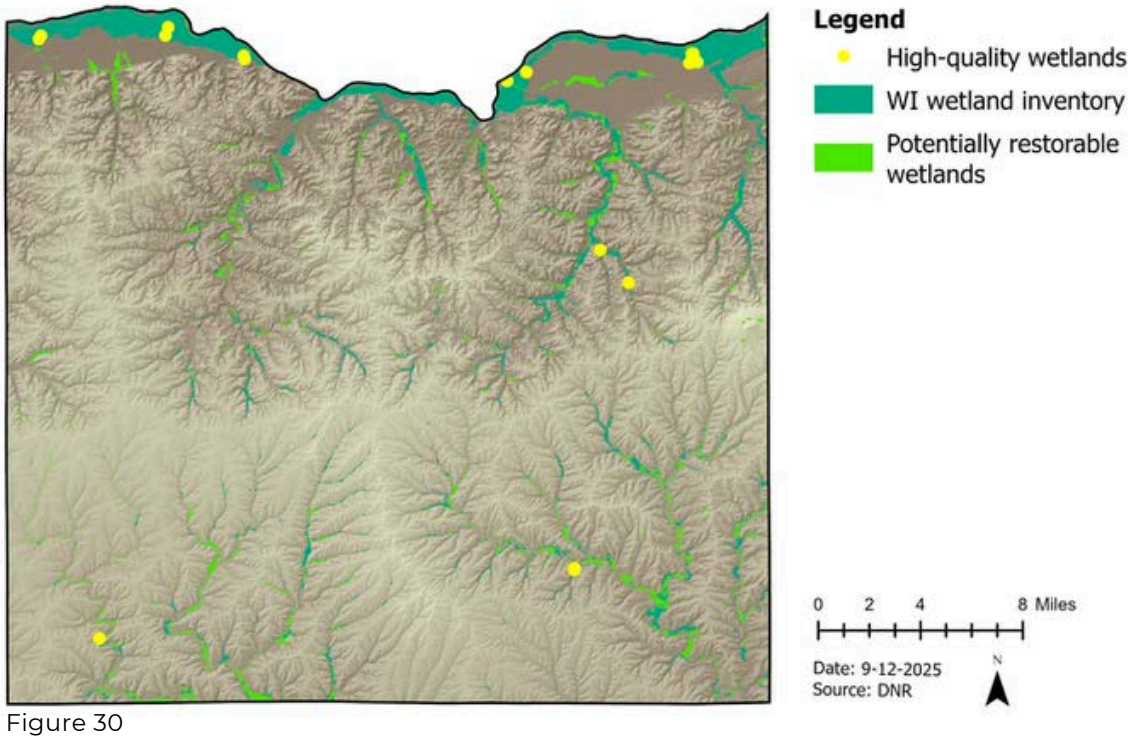


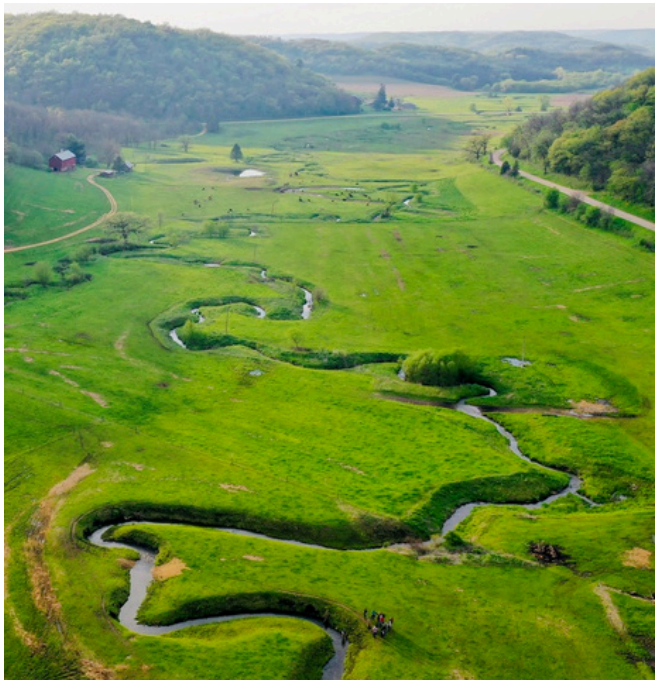
Figure 30

One stream of special note is Lowery Creek (cover image), a Class 1 trout stream. Lowery Creek supports brook trout with genetics native to the lower Wisconsin River drainage and is used as a broodstock source for a wild brook trout stocking program. Well-managed grazing systems in the watershed have helped improve and maintain water quality and serve as an example of compatible agricultural use.

Many larger streams, or streams receiving more surface runoff than groundwater inputs, become cool or warm water systems, with smallmouth bass populations. There are four DNR fishery areas in the county.

Because Iowa County has a mix of degraded and quality streams, macroinvertebrate populations also vary from excellent to poor. A 2015 DNR water quality assessment on the Mineral Point and Sudan Branches watershed found that: "macroinvertebrate scores were typical of streams in the driftless area south of the Military Ridge, which tend to be depressed. This is likely a reflection of the intensity of agriculture in the region combined with a vulnerable landscape (i.e. steep slopes, shallow soils, and highly erodible land)." Bank erosion, both from row cropping without a buffer or intense grazing near the streams, was correlated with worse habitat and macroinvertebrate scores. A 2021 water quality assessment on the Ridgeway Branch- East Branch Pecatonica River Watershed had a similar conclusion: "stream conditions seem to reflect the land use within the watershed." This study also mentioned that historic practices, like stream channelization, continue to have a negative impact on stream habitat.

Invasive species are a constant threat to both terrestrial and aquatic ecosystems in Iowa County, and new species continue to move into Wisconsin. Some of these species pose a risk to human and livestock health, such as poison hemlock that is deadly if ingested.



Lowery Creek, Spring Green, WI

Randy Manning

Steep streambank erosion, Ridgeway, WI

Mayme Keagy

Siddharth Patil/CCO 1.0

Japanese stiltgrass

Mayme Keagy

Poison Hemlock, Ridgeway, WI

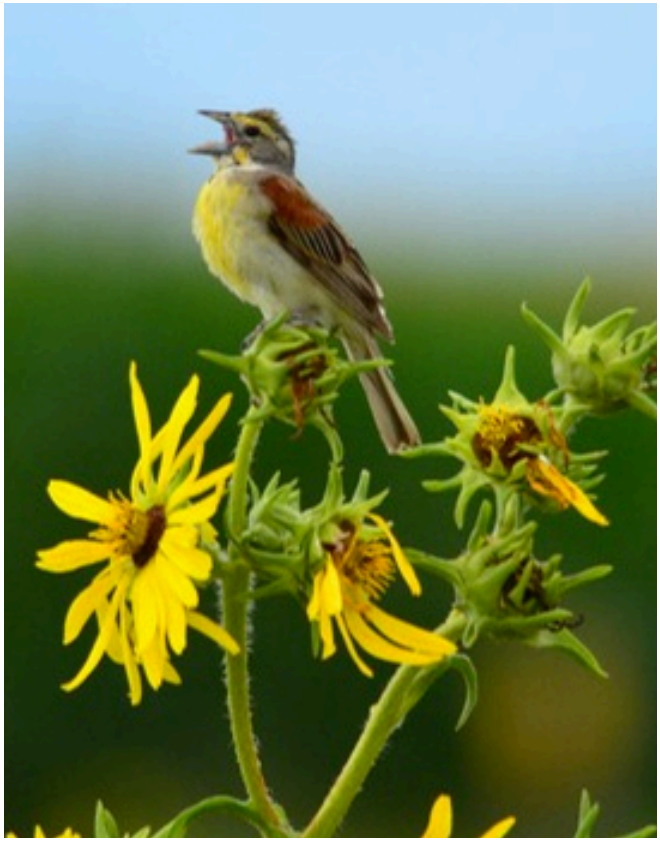
WI DNR's Natural Heritage Inventory lists 160 rare plants and animals in Iowa County, including threatened, endangered, or special concern species at both federal and state levels. Species of note include prairie-dependent insects like the regal fritillary butterfly and red-tailed prairie leafhopper, the recently listed rusty patched bumble bee, rare fishes like the starhead topminnow found in Wisconsin River backwaters, Blanchard's cricket frog, and a suite of grassland-nesting birds. Blanchard's cricket frog is a state-endangered frog found in streams in the county. Land Conservation staff have training to survey and move these frogs during conservation practice construction to help landowners meet waterway permit requirements. Grassland-nesting birds are declining faster than any other group of birds in North America, but southwest Wisconsin still harbors relatively strong populations.

CC-BY-SA-3.0

Regal fritillary (Speyeria idalia)

Katie Abbott

Rusty patched bumble bee (Bombus affinis)



wackybadger CC BY-SA 2.0

Dickcissel (Spiza americana)

Sara Hovis

Blanchard's cricket frog (Acris blanchardi)

WI DNR's Wildlife Action Plan designated Conservation Opportunity Areas (COAs) throughout the state. COAs are places supporting rare species habitat and significant ecological features that provide the best opportunity for successful conservation. Four COAs are present in Iowa County, as well as four Important Bird Areas (IBAs) (figure 31). An Important Bird Area (IBA) is a site that provides essential habitat to one or more species of breeding or non-breeding birds.

IOWA COUNTY COA AND IBA MAP

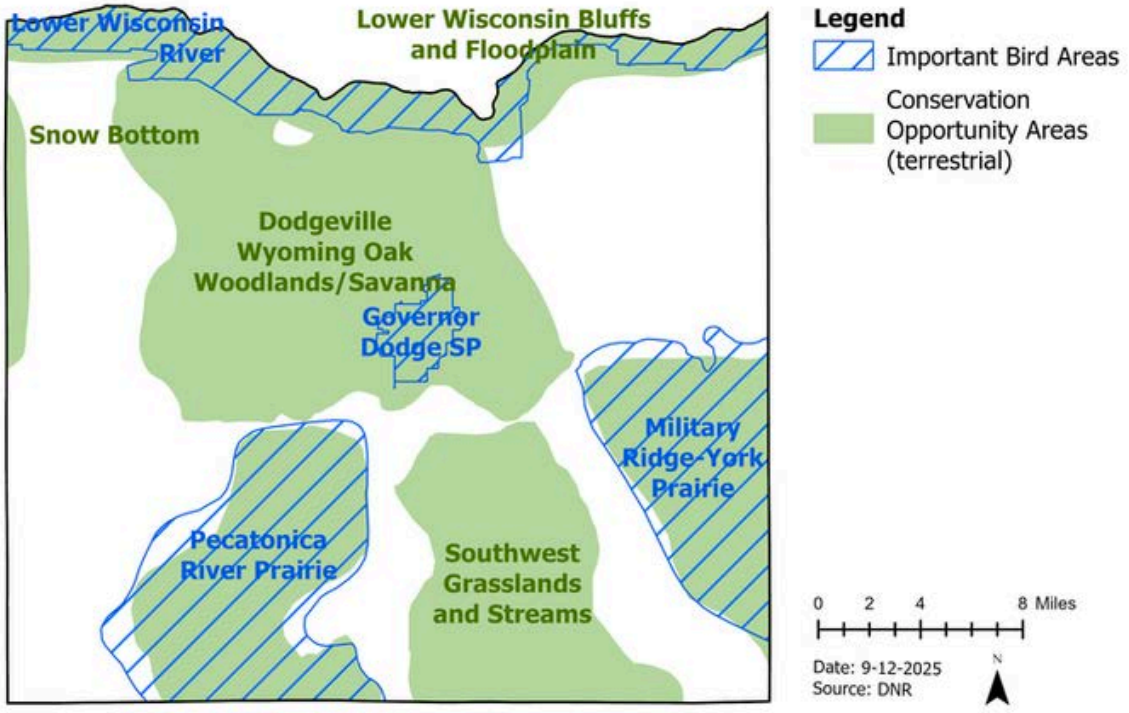


Figure 31

Eastern Meadowlark (Sturnella magna) by Dominic Sherony is licensed under CC BY-SA 2.0

Henslow's Sparrow (Centronyx henslowii) by acryptozoo is licensed under CC BY 2.0

Upland Sandpiper (Bartramia longicauda) by USFWS Mountain Prairie is licensed under CC BY 2.0

CLIMATE

Iowa County's climate normals show the typical seasonal variation of the Upper Midwest: hottest in mid-summer, higher rainfall in late spring and early summer, and cold, snowy winters (see figure 32). Future climate projections show that seasonal patterns may be changing for southwest Wisconsin

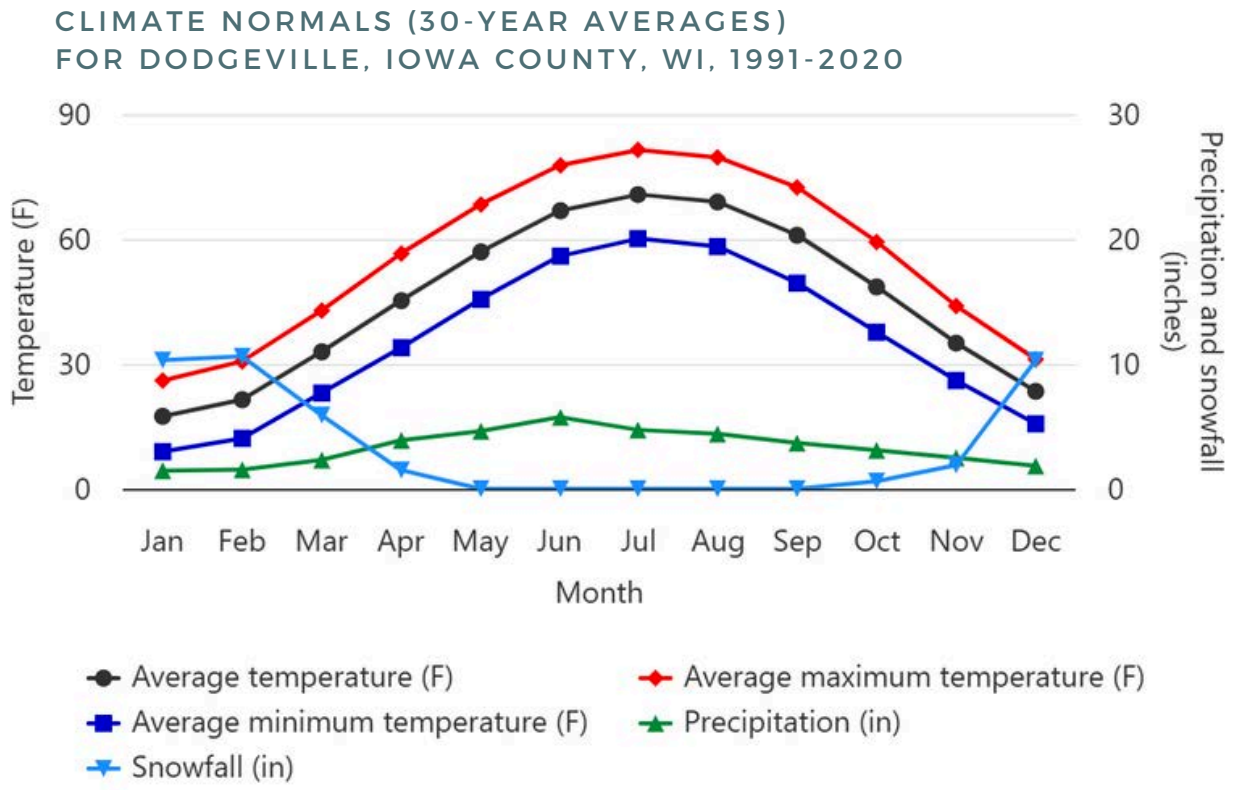


Figure 32 Source: Wisconsin State Climatology Office

Clouds over Iowa County-Mayme Keagy

HISTORICAL TRENDS

Temperature records from 1895-2024 show that Iowa County is becoming warmer, with an increase of 3°F in average annual temperature since 1950 (figure 33). Winter has warmed the most, with an average increase of 4°F, followed by spring (3° F), fall (2°F), and summer (2° F)

Precipitation has also increased, with annual totals increasing by approximately 0.89 inches/decade (~20%) since 1950 (figure 34). This increase has mostly occurred evenly across the seasons, with slightly greater increases in winter and fall compared to spring and summer.

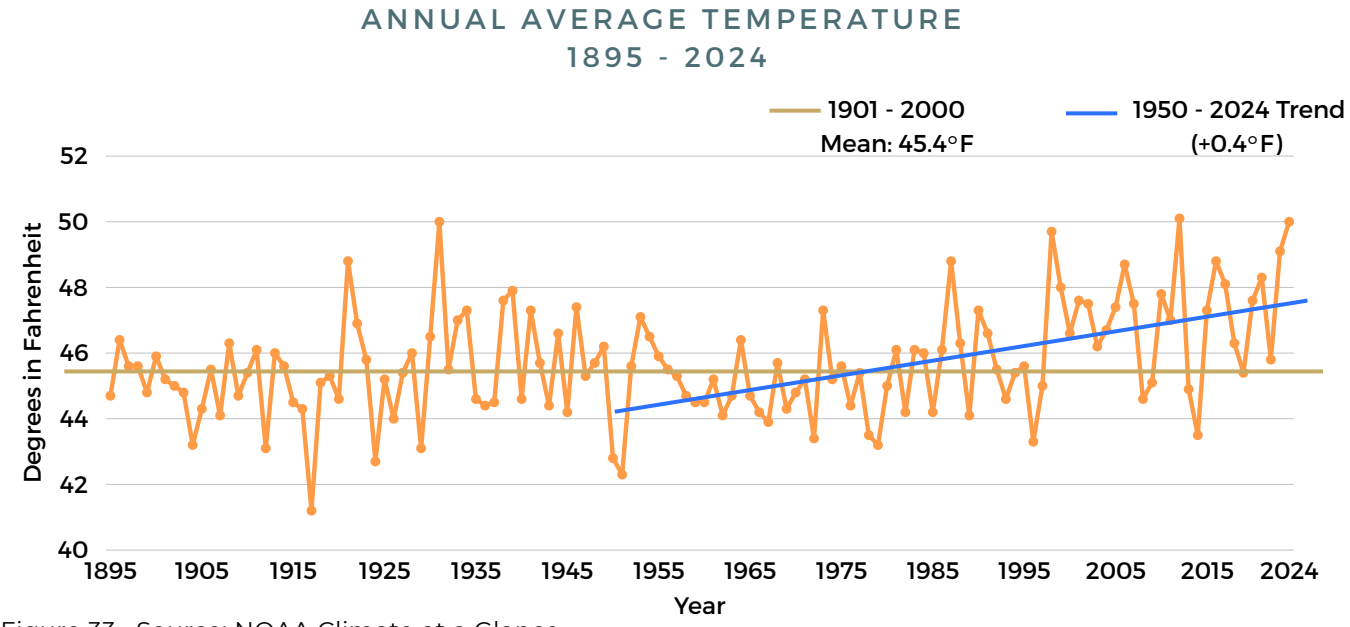


Figure 33 Source: NOAA Climate at a Glance

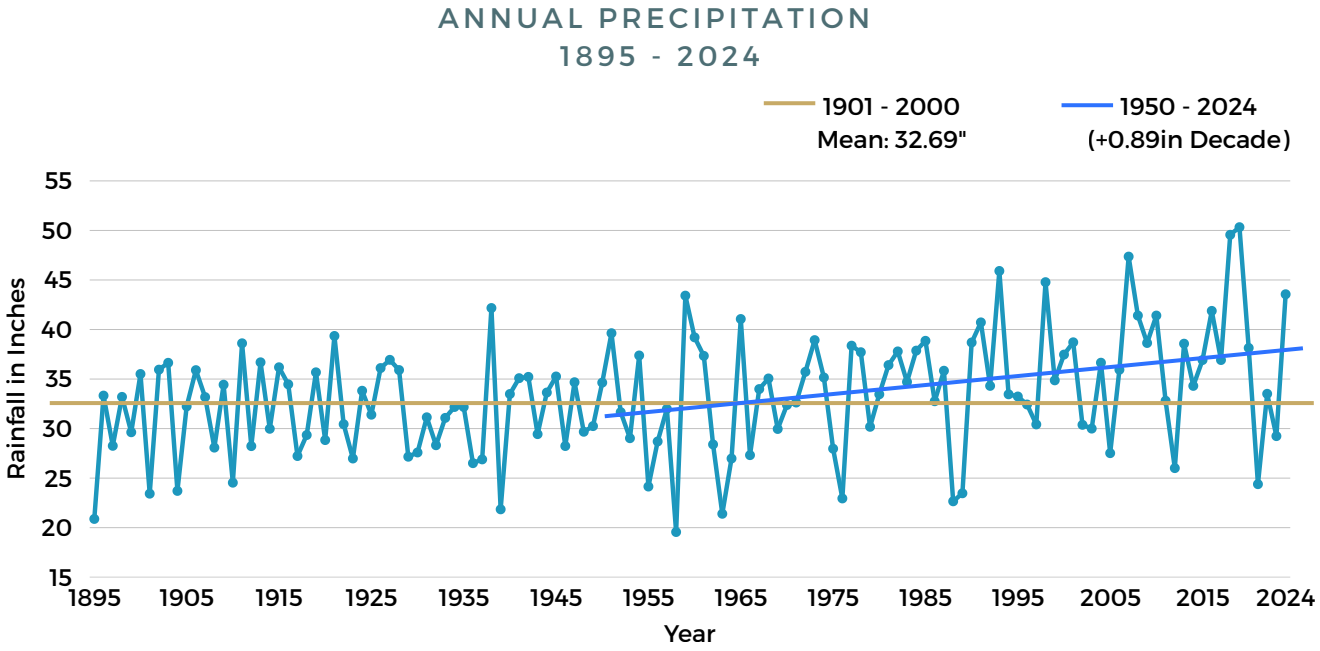


Figure 34 Source: NOAA Climate at a Glance

FUTURE PROJECTIONS

The average annual temperature is expected to increase by 5°F by 2060, which is consistent with projections for most of Wisconsin. Winter months (December, January, and February) are expected to be the most affected, with a higher average temperature increase than other seasons (figure 35), and 20-40 fewer nights below freezing each year (figure 36).

Precipitation is also expected to change by 2060. Extreme (>2 inches) and very extreme (>5 inches) rainfall events are projected to increase. The southernmost area of Wisconsin, including Iowa County, is expected to experience the most frequent precipitation events.

PROJECTED CHANGE IN AVERAGE TEMPERATURE BY SEASON

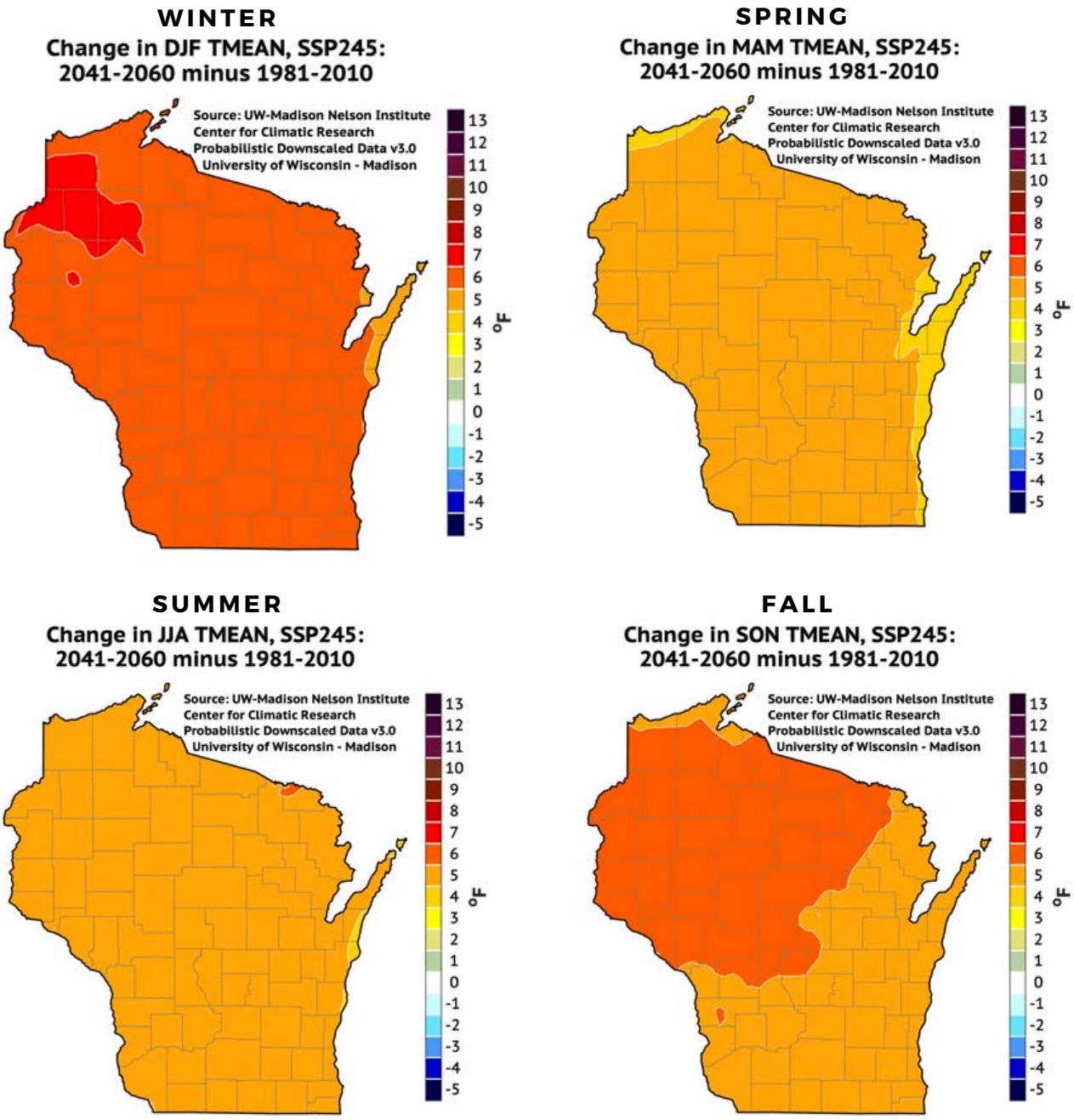


Figure 35 Image source: Wisconsin Initiative on Climate Change Impacts.

Overall precipitation changes are expected to vary by season, with the highest increase in winter, followed by spring and fall. Summer projections are more uncertain, and models diverge on whether increases or decreases are expected. (figure 39) Though total summer precipitation amounts may not change significantly, greater extremes (e.g. more severe droughts and floods) are expected.

IMPACTS

Climate changes will exacerbate our existing challenges of steep slopes, highly erodible soils, and streams impaired by sediment and phosphorus. Farmers have already reported new gullies after heavy rain where they have never existed before. Fields that previously relied on no-till to keep soil in place may need additional conservation practices. Impacts to crops through both flooding and drought, sometimes in the same year, highlight the growing volatility and need for resilient practices. Conservation planning and design may need to incorporate more extreme precipitation as well.

Winter thaws and heavy rain also pose challenges for manure management, increasing the risk of runoff. Many farmers in Iowa County still haul their manure daily due to the high cost of storage facilities. Increased financial assistance with conservation practices may be necessary to help farmers adapt to new weather patterns while minimizing impacts to soil and water.

PROJECTED CHANGE IN NIGHTS PER YEAR BELOW FREEZING IN WISCONSIN

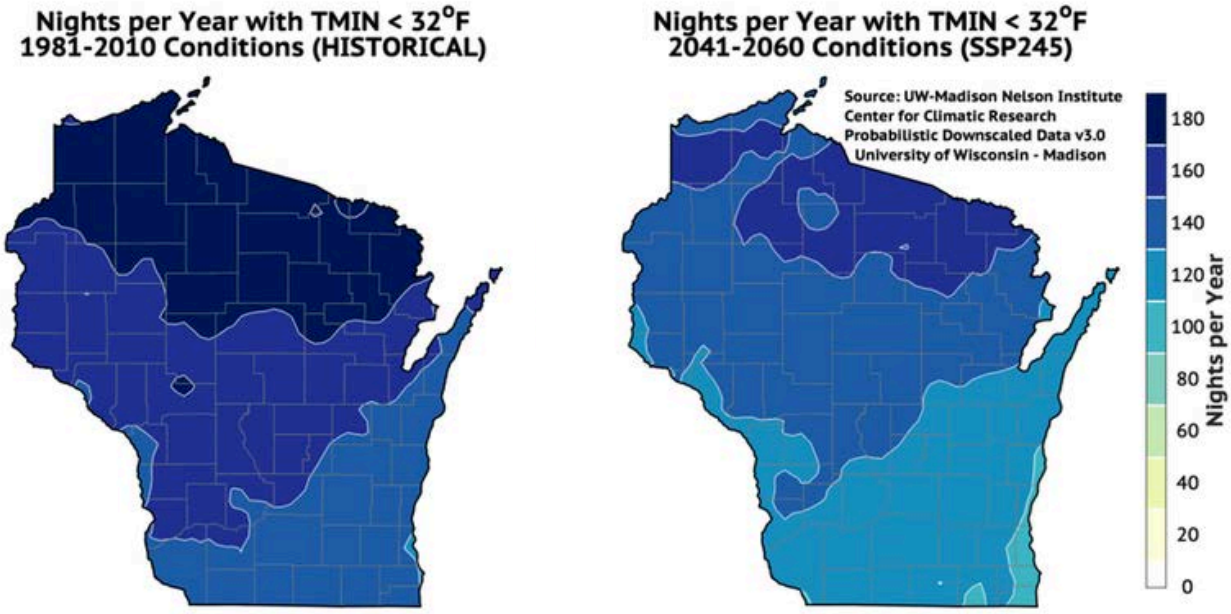


Figure 36 Image source: Wisconsin Initiative on Climate Change Impacts.

Iowa County Land Conservation maintains eleven large flood-control dams, built under the PL-566 (Watershed Protection and Flood Control Act of 1954) program in the 1950's and 1960's (figure 37). As they age, these dams are becoming increasingly expensive to repair and maintain, and the county will have to determine if these dams should be maintained or removed. Improved land use practices since their construction reduced some flooding pressure. However, increased extreme rain events may negate those improvements. Some dams also protect vital infrastructure, such as roads and culverts, that are vulnerable to extreme rain events.

DAM LOCATIONS IN IOWA COUNTY

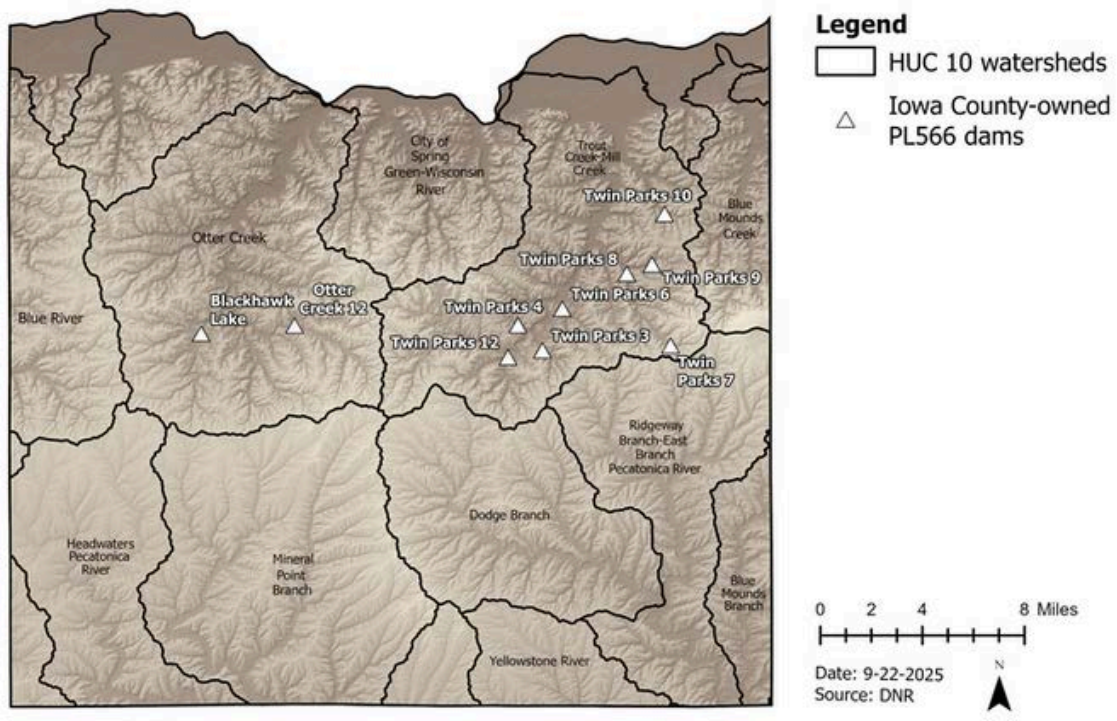
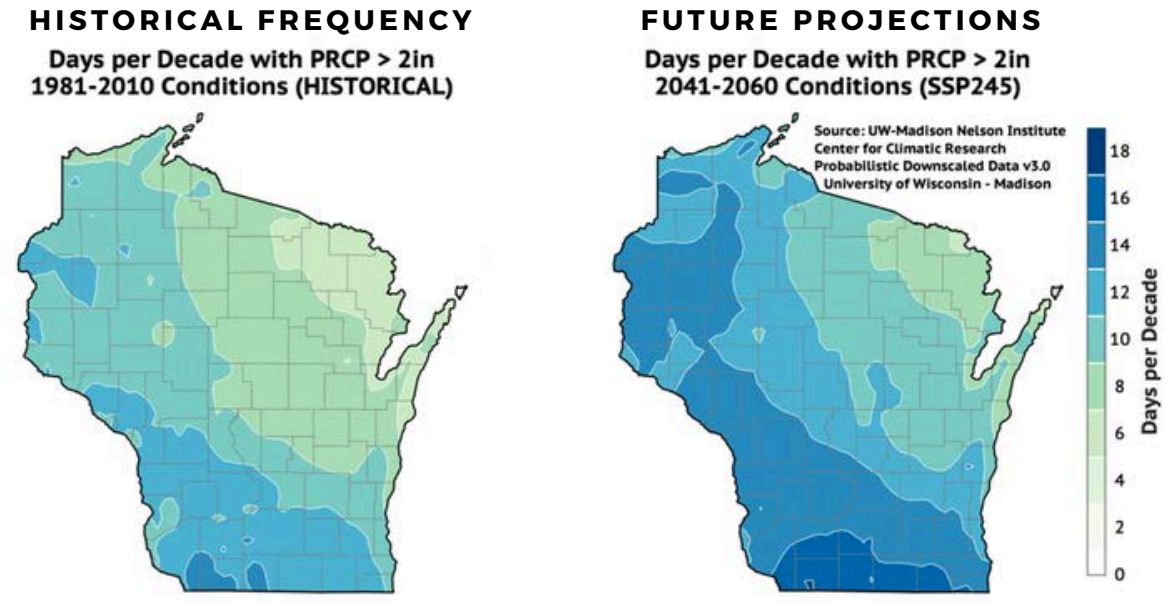


Figure 37

Twin Park, dam #4 - Sara Hovis

PROJECTED CHANGE IN THE FREQUENCY OF EXTREME PRECIPITATION EVENTS

FREQUENCY OF RAINFALL EVENTS WITH >2 INCHES PER DAY



FREQUENCY OF RAINFALL EVENTS WITH >5 INCHES PER DAY

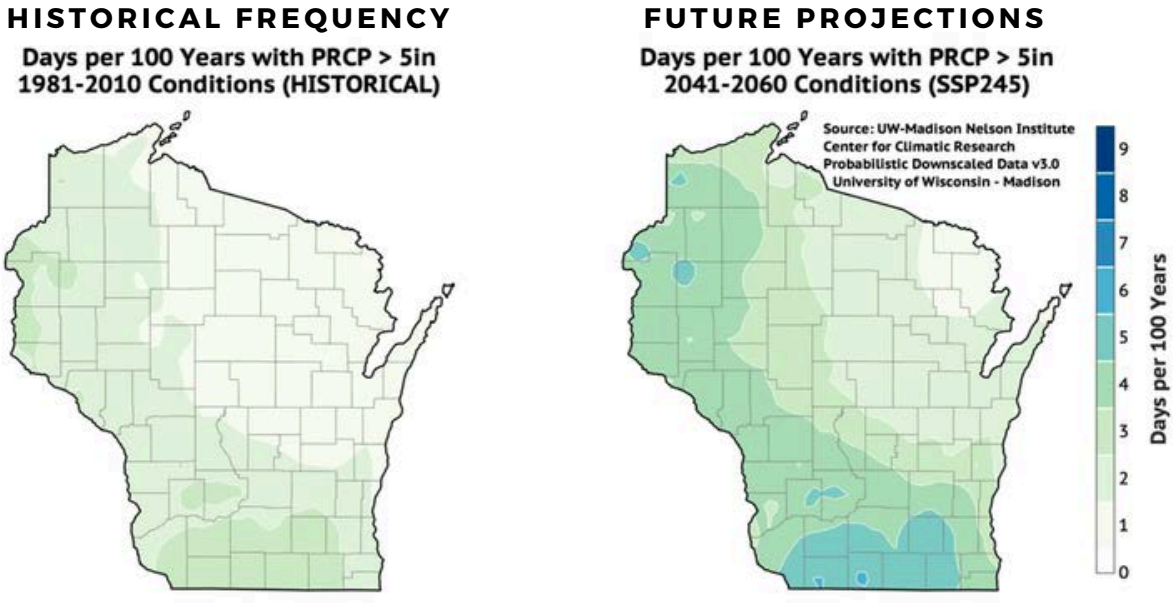


Figure 38 Source: Wisconsin Initiative on Climate Change Impacts.

PROJECTED CHANGE IN PRECIPITATION

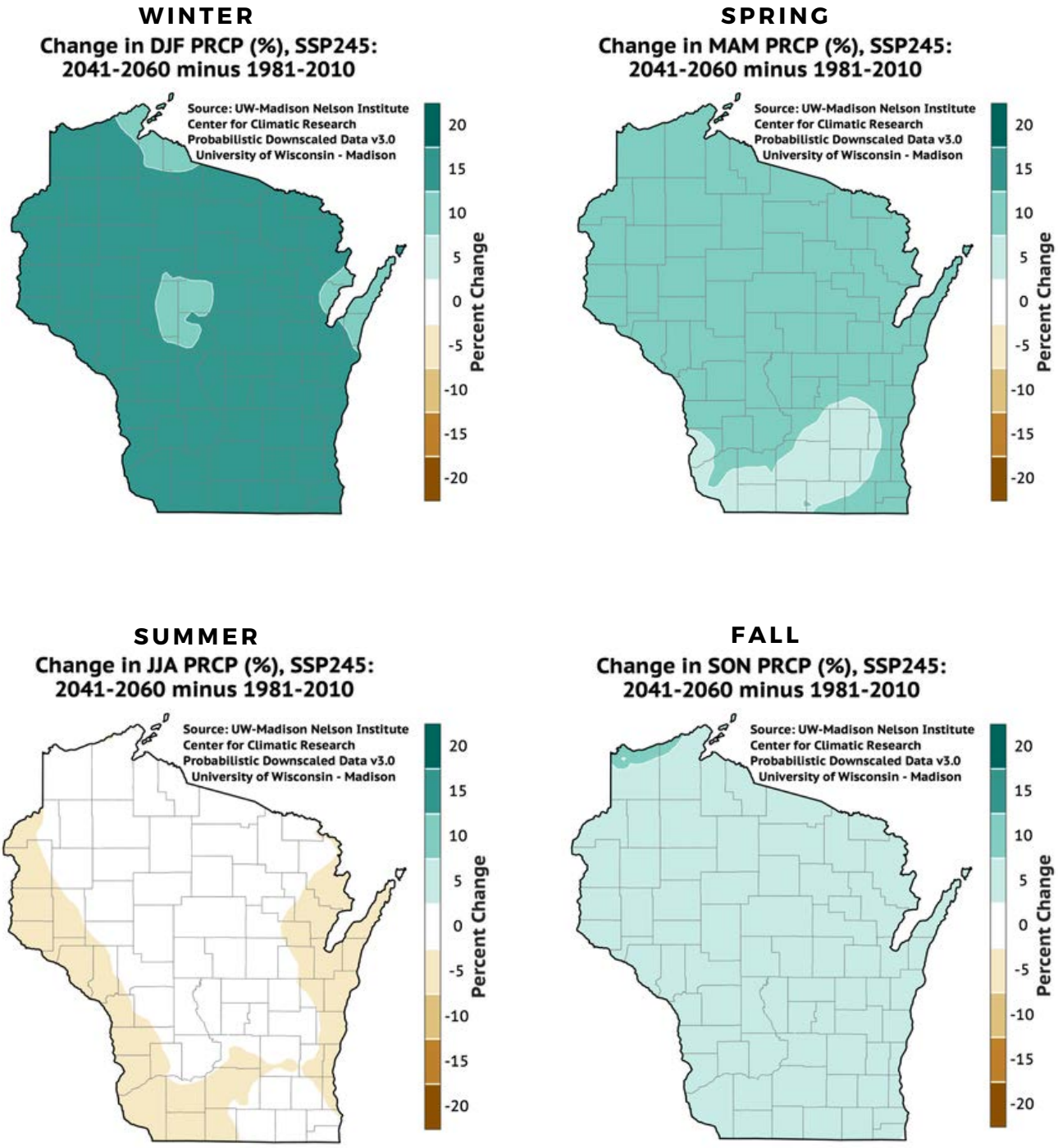


Figure 39 Image source: Wisconsin Initiative on Climate Change Impacts.

PRIORITY ISSUES + TOPICS

A Citizen Advisory Committee meeting was held on March 3, 2025. Thirteen people participated in-person and three others provided information online. Farmers, agriculture professionals, land conservation committee members, and county supervisors were represented.

After providing background information, participants were asked to provide input in five ways.

1. We asked: what do you value about conservation and the Land Conservation Department in Iowa County? This helps us understand what is working well and we should continue doing. Themes include appreciating what we do (technical assistance, financial assistance, education) and how we do it (knowledge, flexibility, common sense).

2. Ranking Wisconsin Agricultural Performance Standards. This helps us prioritize cost-sharing and compliance efforts. The top five standards were:
    a. Erosion rates are equal to or less than the soil's "tolerable" (T) rate
    b. No direct runoff from a feedlot or stored manure into waters of the state
    c. Clean water is diverted away from all feedlots, manure storage areas, and barnyards located within 300 feet from a stream, 1,000 feet from a lake, or in areas susceptible to groundwater contamination (Water Quality Management Area- WQMA)
    d. No unlimited livestock access to waters of the state if animal concentrations prevent adequate vegetative cover
    e. Mechanical applications of manure or commercial fertilizer are applied according to a nutrient management plan (NMP)

3. Ranking conservation topics for outreach and technical assistance. This helps us prioritize education and outreach efforts. The top six topics were:
    a. Soil health.
    b. Conservation programs and practices
    c. Groundwater quality
    d. Perennial/sustainable ag systems
    e. (tie) Surface water quality
    f. (tie) Challenges on rented land

4. We asked: what are barriers to farmers adopting conservation standards and practices? This helps us understand factors that prevent conservation adoption and identify areas our work might be able to overcome barriers. Themes include cost, program logistics, a long timeframe to learn and see benefits, and lack of social norms.

5. We asked: is there anything we haven't talked about yet that we could work on? A strong theme to the comments was peer learning as well as more help navigating cost-share programs.

The full list of citizen responses and rankings is available in appendix B.

We will strive to understand barriers and implement strategies to overcome them where we can. Barriers and practices can change over time as new research, innovation, and policies emerge. Staying aware and responsive to these changes is also an important part of our conservation approach.

In 2019, Land Conservation Department staff conducted strategic planning, which included:

- Listing internal and external stakeholders and their expectations
- Listing strengths, weaknesses, opportunities, and threats
- Brainstorming issues and ranking them
- For the top issues, determining:
  - Long, medium and short-term desired outcomes
  - Outputs in participation (who we reach) and activities (what we do)
  - Inputs (what we invest)

The top issues identified by staff are:

- Conservation culture is not mainstream throughout agriculture industry
- Barriers to investment in conservation (such as time, money, nearing retirement, etc.)
- Impacts of climate change, especially increased rain intensity
- Fewer conservation practices on rented farmland
- Challenges with current enforcement
- Decreased surface water quality
- Decreased groundwater quality
- Decreased quality and quantity of wildlife habitat and public recreation

During a 2023 "relational diagram" exercise, LCD staff determined that the first five issues influence the last three. Strategies around these core issues are needed to address the root causes of resource degradation. This planning is used to focus the objectives and actions in annual workplans to make sure our activities are moving us toward desired outcomes. The strategic plan is reviewed annually and updated as needed.

PRIORITY AREAS

Priority areas focus on HUC12 subwatersheds to provide a manageable scale. Factors related to water quality were scored for each watershed. Factors included:

SURFACE WATER

- Low soil T values
- High soil K factors
- Existing TMDL
- 303(d) impaired streams
- Nutrient Reduction Strategy phosphorus priorities
- Nutrient Reduction Strategy nitrogen priorities

GROUNDWATER

- Nutrient Reduction Strategy groundwater priorities
- High groundwater contamination susceptibility
- Amount of watershed in proposed N restricted area
- Amount of watershed in proposed N target area

HEALTHY WATER

- Outstanding or Exceptional Resource waters
- Trout streams
- HWHQW high quality waters designation
- HWHQW Watershed Health Index score.

These scores were also totaled for the sum of both surface and groundwater (figures 40-43). We will reassess these scores if new information is released, such as changes to the impaired waters list, or the updated Nutrient Loss Reduction Strategy.

There are two ways that are feasible for using these priority areas. The first is on a site basis when a landowner is being considered for a cost-sharing project, especially for structural projects. In these cases, we have a ranking process to ensure all projects meet minimum criteria (i.e. defining what projects we say 'no' to). Ranking also allows us to focus on the highest scoring projects when funds or staff capacity are limited. The ranking will award more points if a project is located in a priority watershed. Other considerations are site-level resource concerns and project needs, such as being required for Farmland Preservation Program compliance.

The second way we prioritize is for outreach, communication, and promotion. Examples of these activities are direct-mail newsletters and event notices, choosing event locations, promoting a specific conservation program or practice, or creating focus areas for special projects. We plan to increase our direct program and practice promotion to farms within the highest priority watersheds. This is where it may be useful to separate out surface and groundwater. For example, if we have grant funding for well water testing we would focus on groundwater priority watersheds.

Our core programs focus on fixing problems and lend themselves to priorities based on degraded conditions of the watersheds. However, the health-based scores will be useful when projects are related to maintaining or enhancing good conditions, such as promoting streambank easements or wildlife habitat programs.

Another factor we must consider is landowner willingness to participate. It is very difficult and time-consuming to try to force conservation practice adoption. If we reserved most of our cost-share funds for only the most degraded watersheds for example, we will not be able to spend the funds if landowners are not interested. Landowner values and attitudes towards conservation are a likely factor in degraded conditions of a watershed in the first place, so conservation may be a more difficult concept to "sell" in those areas. Therefore, we must balance prioritizing efforts in the most degraded watersheds, while also being a resource for those who voluntarily seek conservation assistance no matter where the project is located.

HIGHEST SCORING WATERSHEDS FOR **SURFACE WATER** FACTORS

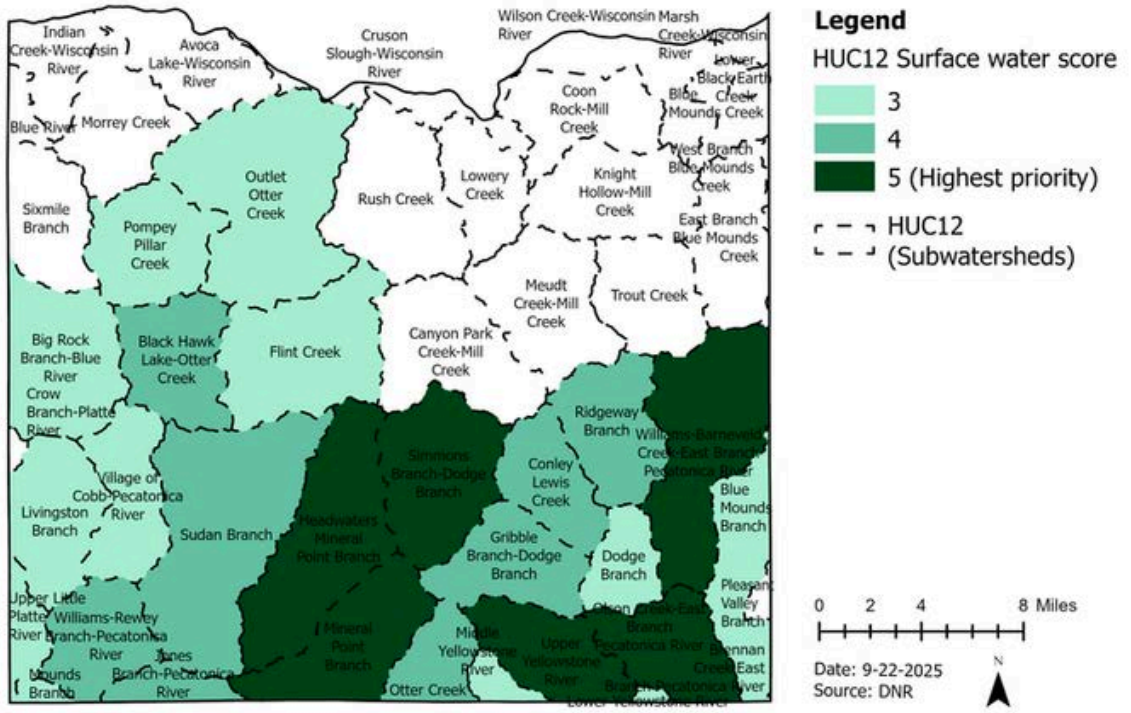


Figure 40

HIGHEST SCORING WATERSHEDS FOR **GROUNDWATER** FACTORS

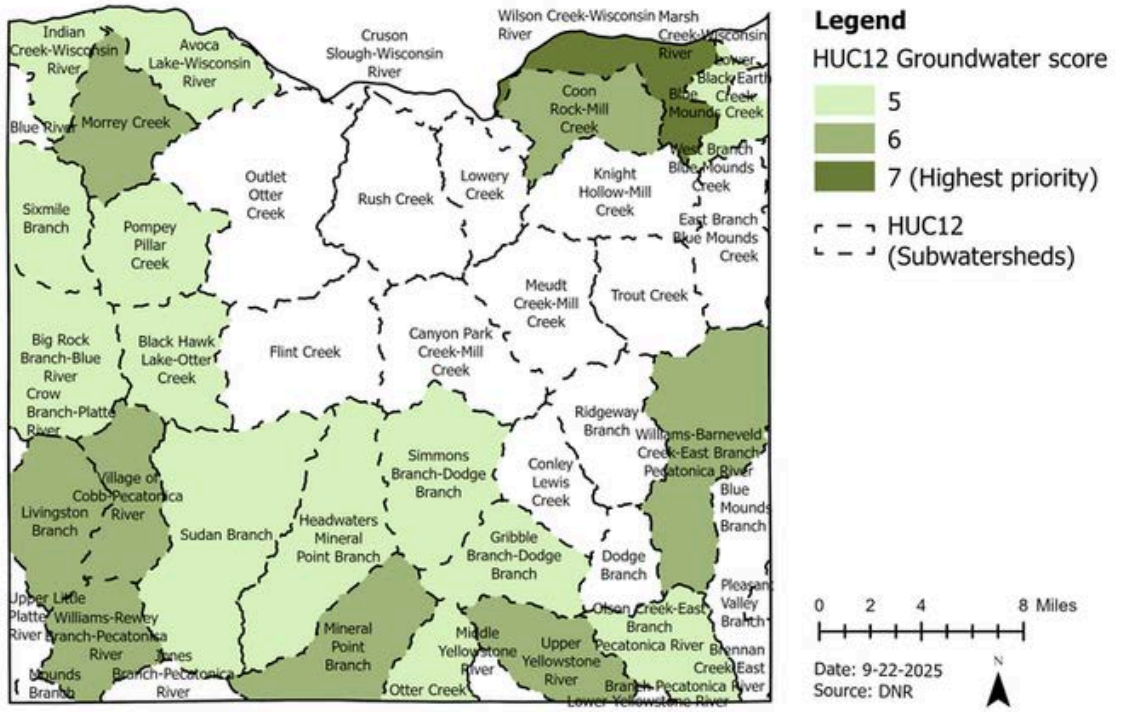


Figure 41

HIGHEST SCORING WATERSHEDS FOR **HEALTHY WATER** FACTORS

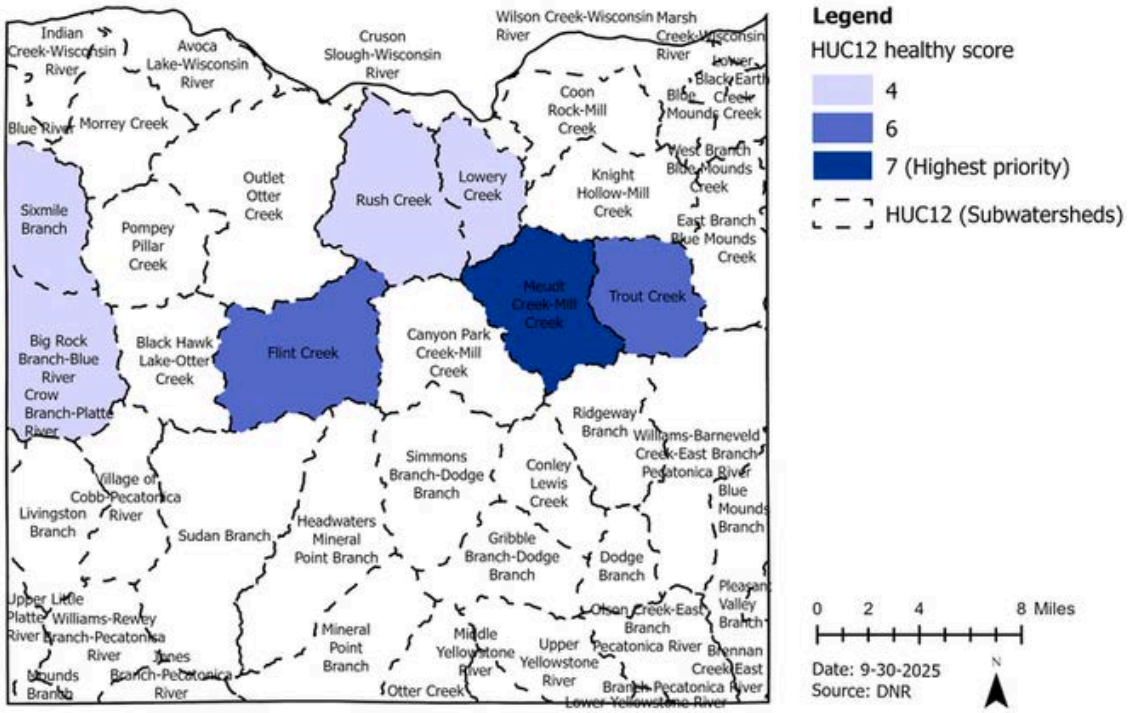


Figure 42

HIGHEST SCORING WATERSHEDS FOR TOTAL **SURFACE WATER AND GROUNDWATER** DEGRADATION FACTORS

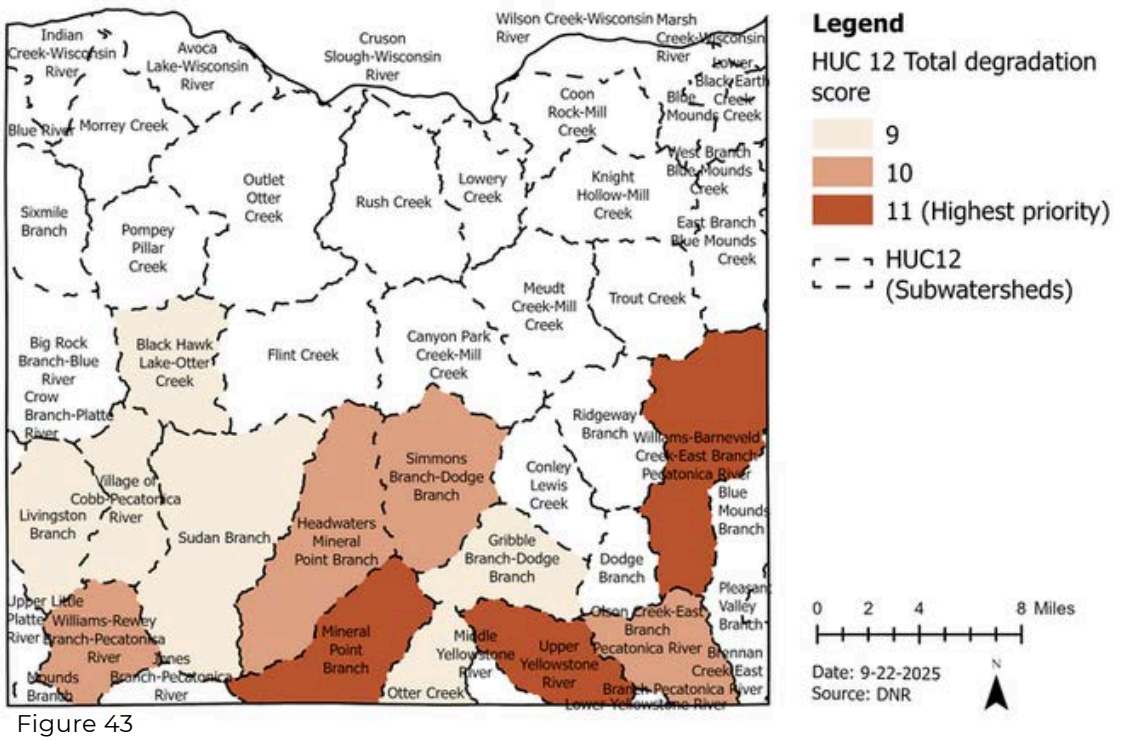


Figure 43

IMPLEMENTATION

Our primary approach to implementing our goals is encouraging and supporting voluntary conservation through financial and technical assistance. We fall back on enforcement tools for NR 151 compliance when needed and feasible. Outreach, education, and partnerships are also key components to our conservation program and working towards meeting NR 151 standards and prohibitions.

Priority farms and projects include:

- Lands enrolled in the Farmland Preservation Program
- Financial and technical assistance that addresses the top issues and NR151 standards and/or are located in priority watersheds identified in this plan
- Complaints received that are related to an NR151 standard or prohibition.

FINANCIAL + TECHNICAL ASSISTANCE

Farmland Preservation Program (FPP)

FPP is our main tool to achieve NR151 compliance, which provides a $10.00 per acre income tax credit on eligible properties that meet the NR151 Agricultural Performance Standards and Prohibitions. The entire county has agricultural zoning, so eligibility and participation are high. Iowa County was 3rd in the state for FPP acres in 2023. In 2024 we had 680 issued certificates of compliance, which we estimate covers about 44% of the cultivated land in Iowa County. The Conservation Specialist position is dedicated to FPP work, ensuring we can complete spot checks on every property once every four years, plus handle all the tracking, communication, and compliance follow-up. Often these site visits lead to conversations that result in conservation practices above and beyond NR151 requirements.

We have a database to track FPP status review visits. These visits are spread throughout the county each year and often coincide with farmers' 4-year soil test cycle. The number of sites requires field work spring through fall. We prioritize spring visits for farms that have a higher risk of erosion issues (e.g. low T values, near impaired streams, or a history of compliance issues) so we can more clearly see tillage and residue levels. We keep a spreadsheet of high-medium-low priority sites to help us determine the best timing.

Highland, WI-Margaret Krome

Soil and Water Resource Management (SWRM)

We use DATCP SWRM grant funding to provide landowners cost-share for cropland and structural practices. Cropland practices are flat per-acre rates for nutrient management planning (NMP), residue management (no-till), and cover crops. Cover crop interest has increased in the last few years, while NMP interest decreased. Structural cost-sharing covers 70% of the costs in most cases. We have had steady interest over the years in manure storage closures, stream crossings, livestock watering systems, roof gutters, grassed waterways, and well decommissioning. These projects adhere to NRCS Conservation Practice Standards. The full list of practices eligible for cost-sharing is listed in Appendix C. Changing permit approaches and regulations have made some waterway projects infeasible. We also use funding from municipalities through the Multi-Discharger Variance (MDV) program, but this is not a long-term source of funding.

Conservation Reserve Enhancement Program (CREP)

This is a sub-program of USDA's Conservation Reserve Program aimed at riparian buffers, with either a 15-year or permanent option. The "enhancement" is state funding that provides an incentive payment and additional cost-sharing. Iowa County LCD completes the state portion of the contract paperwork and assists with monitoring permanent easements. Iowa County was 2nd in the state for CREP acres in 2023.

No-till, Dodgeville, WI - Mayme Keagy

Stream crossing - Sarah Hovis

Spring development - Sarah Hovis

CREP easement monitoring - Mayme Keagy

OTHER PROGRAMS

Iowa County does not designate part of their tax levy funding to landowner cost-share, but we occasionally have special programs available with one-time funding. For example, environmental impact fees from an American Transmission Company project was used to increase well decommission and NMP cost-share, offer nitrogen trial incentives, and cost-share replacement of old septic systems for groundwater protection. We've also secured various grants from DATCP, DNR, and private foundations for one-time projects.

Technical Assistance

Technical guidance accompanies any of our financial assistance programs, but we offer technical assistance not tied to funding as well. We lay out contour strips, organize farmer-written NMP trainings and update classes, provide cricket frog inspections to comply with DNR permits, loan soil testing probes and no-till instruction videos, and answer questions.

ENFORCEMENT

Our non-voluntary compliance is limited to complaints or egregious issues we find on properties that are not in FPP. We do not currently have the capacity to systematically assess NR151 compliance on non-FPP properties or provide the necessary cost-share (and related staff time) for a high amount of enforcement cases. Our approach to non-FPP compliance includes:

1. Active manure spills are immediately reported to the DNR Spills Hotline. Any issues on permitted Concentrated Animal Feeding Operations (CAFOs) will also be referred to DNR.
2. Any site visits, letters, or other follow-up on issues relevant to the Iowa County Manure Storage and Management Ordinance shall be carried out in collaboration with the Iowa County Planning & Development Department.
3. If a violation is confirmed or likely, LCD staff will call the landowner within two weeks to request an on-site meeting to document the issue, discuss management, technical assistance, and cost-share options, and determine next steps with the landowner. If no phone number is available, calls are not returned within two weeks of a second attempt, or the landowner refuses a site visit, a letter will be mailed.
4. Following the site visit a letter will be sent to the landowner summarizing the discussion, outlining next steps, and including notification requirements as specified in NR 151 and the Iowa County Land and Water Resource Management Plan.
5. If a landowner refuses to cooperate or implement corrective practices within the timeframe provided, LCD shall follow procedures of WI Codes NR151 and ATCP50, and/or the Iowa County Manure Storage and Management Ordinance. Follow-up may include referring the issue to the DNR or other State or Federal agencies.

Iowa County has a Manure Storage and Management Ordinance that requires a new manure storage of any size to have a permit and meet NRCS specifications. It also includes the four manure management prohibitions from NR151:

1. A livestock operation shall have no overflow of manure storage facilities.
2. A livestock operation shall have no unconfined manure stack in a water quality management area.
3. A livestock operation shall have no direct runoff from a feedlot or stored manure into the waters of the state.

4. A livestock operation may not allow unlimited access by livestock to waters of the state in a location where high concentrations of animals prevent the maintenance of adequate sod or self-sustaining vegetative cover. Properly designed, installed and maintained livestock or farm equipment crossings are exempt.

When a property that is not enrolled in FPP is found out of compliance with one of these prohibitions, the Land Conservation Department staff works with Planning and Development staff to pursue enforcement through the ordinance.

Iowa County does not have the staff or financial resources, and likely not the political will, for lengthy and expensive legal action around NR151 compliance. Building and maintaining relationships with DNR non-point staff will be important to increasing enforcement capacity where warranted. Some action items include:

- Exploring creation of an MOU to clearly outline roles and expectations around NR151 compliance
- Setting up regular meetings to discuss ongoing noncompliance issues with uncooperative landowners and provide time for questions and technical clarification
- Provide regular updates on current compliance activities, including those related to complaints, ordinance, or FPP
- Coordinate joint site visits when needed

Full manure pit - Landon Baumgartner

Following discharge to stream - Sara Wilhelm

Barnyard runoff - Sara Wilhelm

EDUCATION AND OUTREACH

We will likely never have enough cost-share funding to fix all the soil and water issues in the county, nor enough staff to implement it. That is why using outreach strategies to encourage farmers to implement practices on their own is critical and may lead to longer-term implementation.

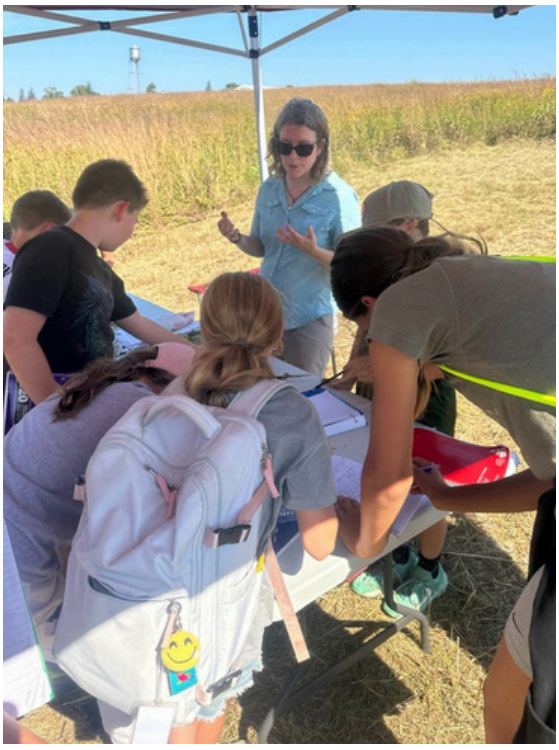
We continue to learn about effective outreach for behavior change, and try to be thoughtful about our messaging, audience, approaches, and messenger. We incorporate outreach as much as we can, but do not have funds for a dedicated position.

The priority issues and topics identified by the citizen advisory committee and land conservation staff will guide our education and outreach focus. Activities include:

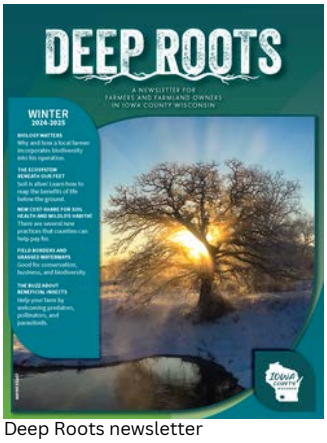
- Hosting field days, workshops, and webinars.
- Creating videos to share information or demonstrate a practice.
- Publishing a printed and online newsletter 1-2 times each year, featuring a farmer story, articles on conservation issues, and program information.
- Maintaining a social media presence.
- Youth education.
- Keeping an up-to-date website.

Biodiversity field day, Wyoming Township - Katie Abbott

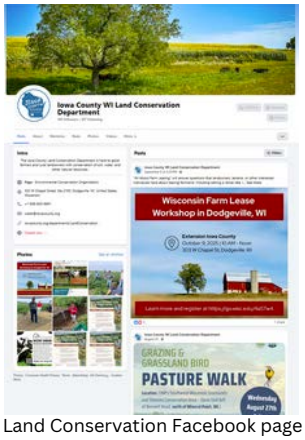
Soil Health field day - Katie Abbott



Youth Conservation Field Day, Bloomfield Prairie - Mayme Keagy



Deep Roots newsletter



Land Conservation Facebook page

PARTNERSHIPS

Having limited capacity, and also acknowledging that government staff are not always the best messengers, means partnership is important.

Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP)

Besides providing oversight to our department and annual core cost-share and staff funding, DATCP also assists with Nutrient Management Plan training classes, co-administers CREP, and provides grants for several programs:

- Clean Sweep: provides funding the collection and disposal of household hazardous waste and agriculture pesticides.
- Producer-Led Watershed Protection Grants: provides funding to producer-led groups that focus on nonpoint source pollution abatement activities. Iowa County is a collaborating entity for a producer-led group.
- SEG Innovation Grants: funding for projects that bring innovation to nutrient management planning and implementation or other priority conservation issues.

Wisconsin Department of Natural Resources (DNR)

The DNR provides technical guidance, data on water quality and natural resources, assistance with education and outreach, watershed planning and NR 151 compliance/implementation and offers several grant programs:

- Targeted Runoff Management (TRM): this program offers competitive grants that reimburse costs for agricultural runoff management practices in targeted, critical geographic areas with surface water or groundwater quality concerns.
- Notice of Discharge (NOD): this program provides cost-share funding grants to governmental units working with owners and operators of livestock operations to meet pollution control requirements imposed by the DNR.
- Surface Water Grants: this program provides cost-sharing grants for surface water protection and restoration. Funding is available for education, ecological assessments, planning, implementation, and aquatic invasive species prevention and control.
- Municipal Dam Grants: This program funds engineering and construction costs associated with the maintenance, repair, modification or abandonment and removal of municipally owned dams.
- Lake Monitoring & Protection Network (LMPN): this program provides annual support to counties to perform services and activities to assist in aquatic invasive species prevention and lake monitoring activities. Annual funding is allocated to each county based on variables such as resource quantity, resource condition, network activity, and economy.

U.S. Department of Agriculture (USDA)
Farm Service Agency (FSA)
Natural Resources Conservation Agency (NRCS)

Iowa County Land Conservation partners with FSA to administer CREP, share information, and promote CRP. We communicate with NRCS about cost-share projects, often referring landowners to each other depending on whether county cost-share or the federal Environmental Quality Incentives

Program (EQIP) is the best fit. We collaborate on compliance issues, particularly for non-FPP landowners, and provide cricket frog inspections for EQIP waterway projects as needed. NRCS also helps with education and outreach efforts.

UW-Madison Division of Extension

Extension is one of Iowa County Land Conservation's main partners for education and outreach. We collaborate to plan and implement events and develop articles and fact sheets related to conservation topics. Extension also assists with Nutrient Management Plan training classes.

Iowa County Uplands Farmer-led Watershed Group

Iowa County Land Conservation partners with the Uplands group to provide technical assistance and cost-share to its members. We prioritize our time on outreach to helping with Uplands farmer-led events, as peer to peer learning is considered one of the most effective approaches for increasing conservation adoption. Iowa County recently became the collaborator to administer the Uplands producer-led watershed grant from DATCP. These grants include incentive payments to farmers for implementing conservation practices. The Uplands project area includes nine HUC12 subwatersheds in northern Iowa County (figure 44).

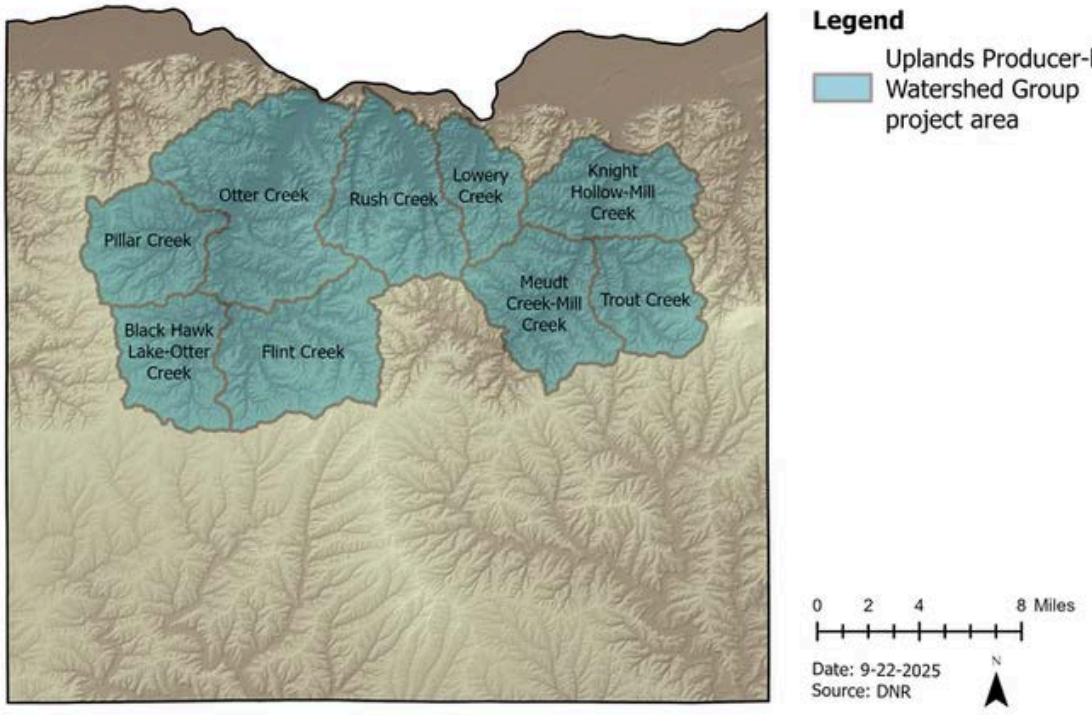


Figure 44

Southern Driftless Grasslands (SDG)

SDG is a partnership of public and private organizations working together to conserve the grasslands of Southwest Wisconsin through landscape-scale change. Land Conservation staff participate in meetings, provide guidance, and collaborate on education efforts and program promotion. The Land Conservation Department also recognizes the importance of permanent conservation easements and fee title acquisition for willing landowners who wish to protect their farm or natural lands from incompatible development.

Lowery Creek Watershed Initiative

The Lowery Creek Watershed partnership aims to protect and enhance the water quality, viewsheds, working lands, natural lands, and quality of life in the Lowery Creek watershed. Land Conservation staff participate in meetings, provide guidance, and collaborate on education efforts and program promotion.

Lowery Creek Watershed meeting.

Upper Sugar River Watershed Association (USRWA)

Since our department has little capacity to work on invasive species projects, we designate our Lake Monitoring & Protection Network grant allocation to USRWA. They conduct invasive species programs, and we collaborate on some education and outreach efforts.

Wisconsin Land and Water Conservation Association

The Wisconsin Land and Water Conservation Association supports the work of county conservation staff and committee members by providing training, advocating for policy, coordinating education efforts, sharing conservation stories with media and the public, and facilitating communication between counties and partners.

Other Iowa County Departments

Collaboration between departments is common. We work the Highway Department on dam maintenance, the Planning and Development Department on administering the county's manure storage ordinance, and the health department on groundwater quality programming.

Other County Departments

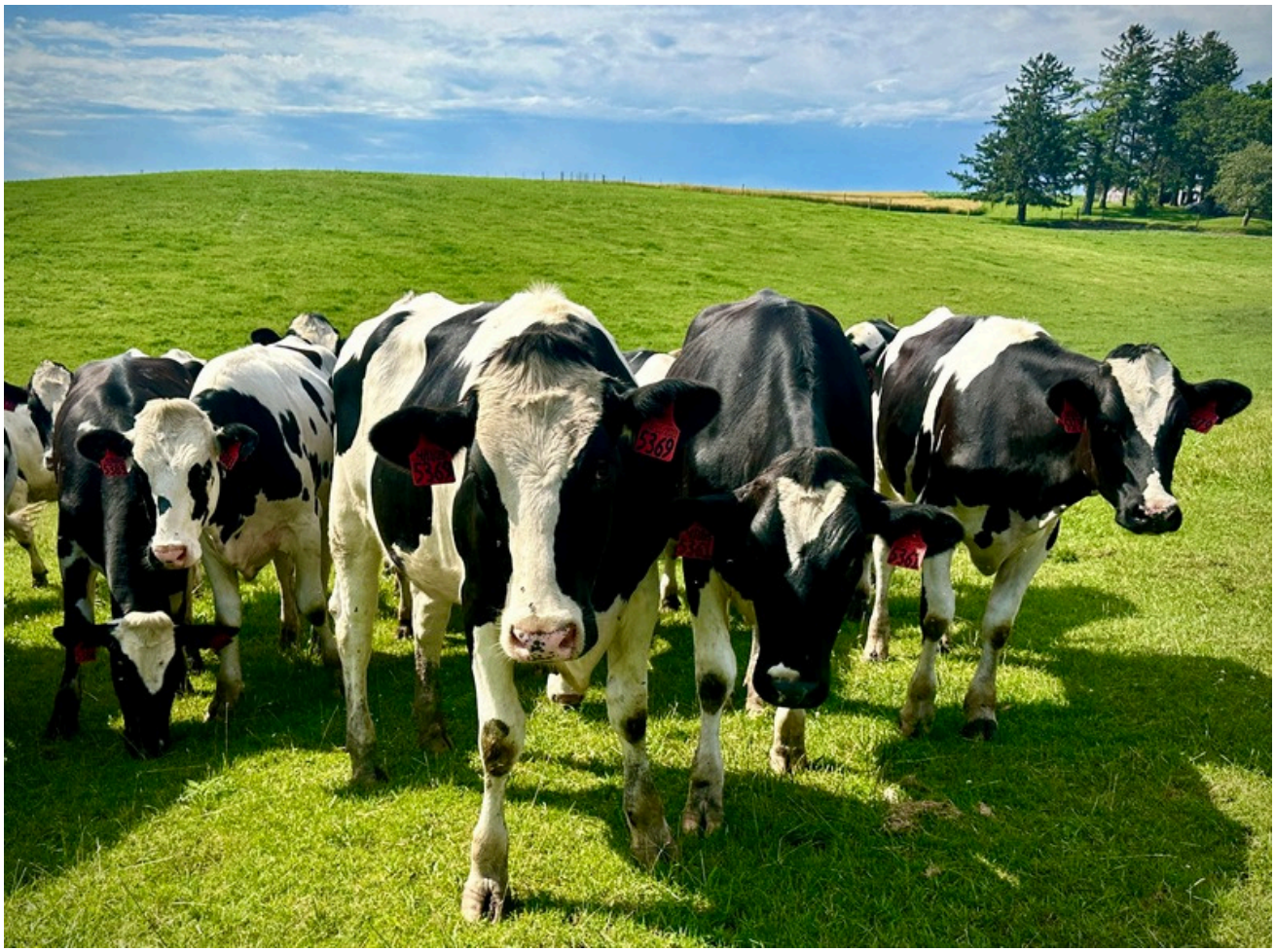
Grant and Lafayette Counties were key partners in the Southwest Wisconsin Geology and Groundwater Study, and Iowa County Land Conservation collaborates with neighboring counties on educational events.

Municipalities

Iowa County Land Conservation can offer limited assistance to municipalities with phosphorus trading programs that are required to meet their wastewater system permits. For example, we have worked with some municipalities to identify projects and provide Snap Plus P-trade reports.

Wildlife Damage Abatement

Iowa County Land Conservation collaborates with DNR and Wildlife Services of the USDA-Animal and Plant Health Inspection Service to administer funds for damage prevention assistance and partial compensation to farmers when wild animals damage their agricultural crops.



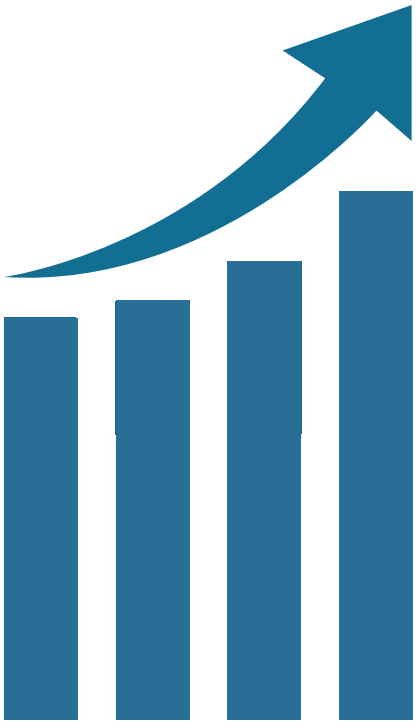
Curious cows, Dodgeville, WI - Mayme Keagy

INCREASING CAPACITY

As with any organization, the Iowa County Land Conservation Department would achieve a greater impact on priority issues and watersheds with more staff capacity. There are several grants that provide cost-share funding but not enough money (and sometimes no money) to hire additional staff to implement the extra funds. Additional staff funds would need to cover at least two to three years to allow time for hiring, training, and building relationships. If such funds were available, we would prioritize the following positions:

- Watershed specialist, to proactively contact landowners and promote conservation practices in priority watersheds
- Grazing specialist, to promote managed grazing and provide technical assistance, including grazing plans
- Outreach and education specialist, to increase our field day and event offerings, social media presence, and youth education programs

MEASURING PROGRESS



We can monitor progress in several ways:

- Modeling reductions in nitrogen, phosphorus, and sediment with tools such as the Environmental Protection Agency's Pollutant Load Estimation Tool or SnapPlus, Wisconsin's Nutrient Management Planning software program.
- Reviewing updated DNR water quality monitoring and assessments.
- Tracking numbers, acres, and locations of land enrolled in FPP through our database and GIS.
- Tracking the number, acres, and locations of Nutrient Management Plans through our database and GIS.
- Recording numbers and types of event participants and conducting post-event evaluations.
- Tracking engagement metrics from our website, email campaigns, and social media.
- Creating and reviewing annual work plans, including required reporting to DATCP
- Recording and sharing success stories

This data should be recorded and reviewed annually to determine what activities and approaches were most successful and where we should change. Looking at longer-term trends every 3-5 years will also help us assess progress and if changes are needed. When new natural resource information or assessments are available, such as changes to DNR's 303(d) impaired waters list or release of an updated Nutrient Loss Reduction Strategy, we will revisit our priority watersheds and see if our rankings should change.

SUMMARY

Making significant, lasting improvements to Iowa County's soil, water, and wildlife resources is a challenging and important objective. The Iowa County Land Conservation Department will use the priorities and strategies in this plan to maximize our impact with the available capacity, in hopes we will see indications of improved conditions by the end of the plan's timeframe.

WISCONSIN ADMINISTRATIVE RULE NR 151
AGRICULTURAL PERFORMANCE STANDARDS AND PROHIBITIONS

NR 151.02 Sheet, Rill and Wind Erosion

1. All land where crops or feed are grown shall be cropped to achieve a soil erosion rate equal to, or less than, the "tolerable" (T) rate established for that soil.
2. This section applies to livestock pastures and winter grazing areas after July 1, 2012.

NR 151.03 Tillage Setback

1. No tillage operation shall impact stream integrity or deposit soil directly in surface waters.
2. No tillage may be conducted within five (5) feet of the top of the channel of surface waters. Tillage setbacks greater than five (5) feet but no more than 20 feet may be required to meet this standard.
3. Producers shall maintain the five (5) foot tillage setback in sod or vegetative cover.

NR 151.04 Phosphorus Index

1. Croplands, pastures and winter grazing areas shall average a Phosphorus Index of six (6) or less over the accounting period and may not exceed an index of 12 in any individual year. The Phosphorus Index shall be calculated using the version of the Wisconsin Phosphorus Index available as of January 1, 2011.

NR 151.05 Manure Storage Facilities

1. All new or substantially altered manure storage facilities built after October 1, 2002 shall comply with this section.
2. All new or substantially altered manure storage facilities shall be designed, constructed and maintained to minimize failure.
3. All facilities built or altered after January 2, 2011 shall contain the additional runoff volume of a 25-year, 24-hour storm.
4. A manure storage structure where usage has ceased for 24 months shall be abandoned. Facilities where future use is anticipated may be retained under specific conditions.
5. Facilities in existence as of October 1, 2002 that pose an imminent threat to public health, aquatic life or groundwater shall be upgraded, replaced or abandoned in accordance with this section.
6. Manure storage levels in new or existing (based on the definitions of new and existing) may not exceed the margin of safety.

NR 151.055 Process Wastewater

1. All livestock producers shall comply with this section.
2. There may be no significant discharge of process wastewater, defined by NR 243.03(53) to waters of the state.

NR 151.06 Clean Water Diversion

1. All livestock producers shall comply with this section.
2. Runoff shall be diverted from contacting feedlots, manure storage and barnyard areas within the Water Quality Management Area.
3. Private wells only need protection when located downstream of feedlots and barnyards.

NR 151.07 Nutrient Management

1. All crop producers and livestock producers that apply manure or other nutrients directly or through contact to agriculture fields shall comply with ATCP 50 technical standards.
2. Manure, commercial fertilizer, and other nutrients shall be applied in conformance with an approved NRCS 590 nutrient management plan.

NR 151.08 Manure Management Prohibitions

1. All livestock producers shall comply with this section.
2. All livestock operations shall have no overflow of manure storage facilities.
3. A livestock operation shall have no unconfined manure pile in a water quality management area.
4. A livestock operation shall have no direct runoff from a feedlot or stored manure into the waters of the state.
5. A livestock operation may not allow unlimited access by livestock to the waters of the state where high concentrations of animals prevent the maintenance of adequate sod cover.

Storms on the corn horizon, Brigham Township - Mayme Keagy

CITIZEN INPUT SUMMARY
LAND + WATER RESOURCE MANAGEMENT PLAN

Sixteen farmers, ag-related professionals, and citizens provided input to the Land + Water Resource Plan.

Ranking NR151 Agricultural Performance Standards and Prohibitions (number is the number of votes)

11: Erosion rates are equal to or less than the soil's "tolerable" (T) rate

7: No direct runoff from a feedlot or stored manure into waters of the state

5: Clean water is diverted away from all feedlots, manure storage areas, and barnyards located within 300 feet from a stream, 1,000 feet from a lake, or in areas susceptible to groundwater contamination (Water Quality Management Area- WQMA)

4: No unlimited livestock access to waters of the state if animal concentrations prevent adequate vegetative cover

4: Mechanical applications of manure or commercial fertilizer are applied according to a nutrient management plan (NMP)

3: Fields have Phosphorus Index of 6 or less over a rotation (and do not exceed 12 in any individual year)

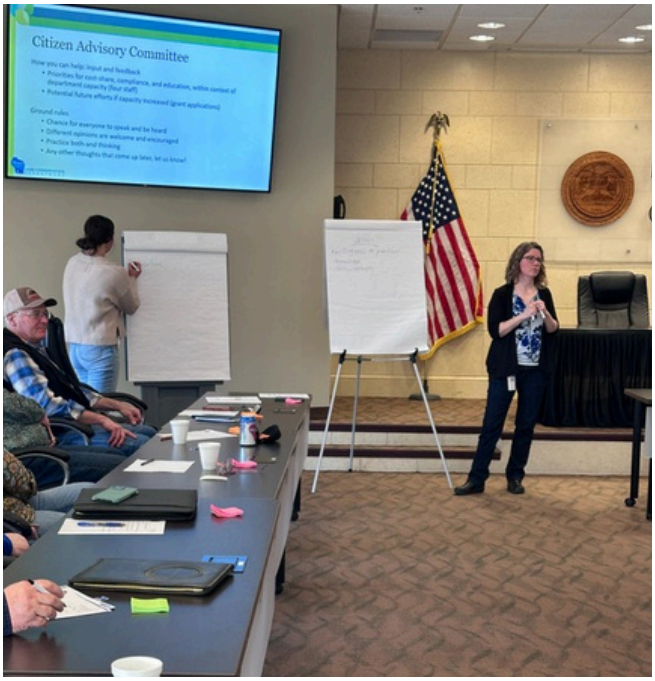
3: Manure storage facilities are: constructed and managed to minimize leakage and risk of failure, maintained to prevent overflow, and managed to keep manure at least one foot below top of storage unit

2: No tillage within 5 feet from the top of channel of surface waters

2: No significant discharges of process wastewater (milkhouse waste, feed leachate) into waters of the state

1: No unconfined manure piles located in a WQMA

0: Manure storage facilities not used for 24 months are closed or approved for repurpose



Sara Wilhelm and Katie Abbott gather input from the Citizen Advisory Committee

What do you value about conservation and the Land Conservation Department in Iowa County?

- Conservation practices cost-shared
- Professional technical assistance on conservation plans
- Being a first stop for conservation info/resources
- Being available when someone is ready to try a practice or has a question
- Protection of public resources
- Knowledge/expertise (e.g. SnapPlus)
- Staying current
- Common sense
- Flexibility
- Willingness to partner
- Follow through
- Education
- Communication
- Field days

The Citizen Advisory Committee met in March 2025 to provide recommendations toward the 2026 Land + Water Resource Management Plan

Ranking conservation topics for outreach and technical assistance (number is the number of votes)

8: Soil health- Comment: perennial ag & landowner education impact soil health, and soil health impacts surface water, nutrient management, extreme weather, and groundwater quality.
8: Conservation programs and practices
7: Groundwater quality
6: Perennial/sustainable ag systems
5: Surface water quality- Comment: subtopics of cover crops, reduce tillage/no till, streambank preservation
5: Challenges on rented land
3: Extreme weather-Comment: and its effect on soil erosion (large rain events)
3: Economic aspects of conservation
3: Nutrient management
1: Other: connecting new farmers to land and vice versa (farm link program)
1: Other: importance of diversity in crops grown and livestock species
1: Other: volunteer corps of retired farmers/conservationists to assist paid staff
1: Other: Carbon credits
0: Wildlife habitat
0: Youth education

Discussion: what are barriers to farmers adopting conservation standards and practices?

- The reimbursement model (having to upfront a large amount of money)
- Cost; Economic barriers
- FPP rate not tied to inflation
- Cost-share rates too low
- Wait time
- Timing
- Paperwork
- Risk; low margins
- Lack of knowledge
- Learning curve
- Needs a system change/ long timeframe to see benefits
- Seeing negative trends on the landscape- becomes the norm (e.g. loss of contour strips and waterways)
- Lack of peer pressure

Discussion: is there anything we haven't talked about yet that we could work on?

- We need additional farmer-led groups or other watershed-focused efforts- keep them small (e.g. Lowery Creek)
- Helping organize watershed efforts (like Lowery Creek) can help make a difference.
- Connect farmers to each other; build community around conservation
- Local farmers with success stories testimonials are important.
- More help with cost-share paperwork/facilitation (like a Farm Bill Biologist)
- Continue to know your farmers and their needs. When funding is available, help them secure cost sharing. Know the landscape and get best management practices implemented
- Tillage just beyond the 5 ft. of setback from surface water banks is too close in my opinion and any incentives that could be used to increase this would be very helpful.

COST-SHARE PRACTICES

SOIL+ WATER RESOURCE MANAGEMENT PROGRAM

Cover Crops

Tile installation for waterway

No-till

Photos: Sara Wilhelm
Tony Pillow inspecting waterway grading

ATCP 50.62 Manure storage systems
ATCP 50.63 Manure storage system closure
ATCP 50.64 Barnyard runoff control systems
ATCP 50.65 Access road
ATCP 50.66 Trails and walkways
ATCP 50.663 Conservation cover
ATCP 50.668 Conservation crop rotation
ATCP 50.67 Contour farming
ATCP 50.68 Cover crop
ATCP 50.69 Critical area stabilization
ATCP 50.70 Diversions
ATCP 50.705 Feed storage runoff control systems
ATCP 50.71 Field windbreaks
ATCP 50.72 Filter strips
ATCP 50.73 Grade stabilization structures
ATCP 50.733 Habitat diversification
ATCP 50.738 Harvestable buffers
ATCP 50.74 Hydrologic restoration
ATCP 50.75 Livestock fencing
ATCP 50.76 Livestock watering facilities
ATCP 50.77 Milking center waste control systems
ATCP 50.78 Nutrient management
ATCP 50.785 Nutrient treatment system
ATCP 50.79 Pesticide management
ATCP 50.80 Prescribed grazing
ATCP 50.81 Relocating or abandoning animal feeding operations
ATCP 50.82 Residue management
ATCP 50.83 Riparian buffers
ATCP 50.84 Roofs
ATCP 50.85 Roof runoff systems
ATCP 50.86 Sediment basins
ATCP 50.87 Sinkhole treatment
ATCP 50.88 Streambank or shoreline protection
ATCP 50.882 Stream restoration
ATCP 50.885 Stream Crossing
ATCP 50.89 Stripcropping
ATCP 50.90 Subsurface drains
ATCP 50.91 Terrace systems
ATCP 50.92 Underground outlets
ATCP 50.925 Verification of depth to bedrock
ATCP 50.93 Waste transfer systems
ATCP 50.94 Wastewater treatment strips
ATCP 50.95 Water and sediment control basins
ATCP 50.96 Waterway systems
ATCP 50.97 Well decommissioning
ATCP 50.98 Wetland development or restoration

SOURCES

Wisconsin Department of Natural Resources:

GIS: https://data-wi-dnr.opendata.arcgis.com/

Surface water data viewer: https://dnr.wisconsin.gov/topic/SurfaceWater/swdv

Wisconsin's Nutrient Loss Reduction Strategy:
https://dnr.wisconsin.gov/topic/SurfaceWater/NutrientStrategy.html

Grant-Platte/Sugar-Pecatonica Basins, watershed details, and water lists:
https://dnr.wisconsin.gov/topic/Watersheds/basins/gpsp

Lower Wisconsin River Basin, watershed details, and water lists:
https://dnr.wisconsin.gov/topic/Watersheds/basins/lowerwis

Water condition lists: https://dnr.wisconsin.gov/topic/SurfaceWater/ConditionLists.html

Outstanding And Exceptional Resource Waters:
https://dnr.wisconsin.gov/topic/SurfaceWater/orwerw.html

Trout Stream Classifications: https://dnr.wisconsin.gov/topic/Fishing/trout/streamclassification

Healthy Watersheds, High-Quality Waters:
https://dnr.wisconsin.gov/topic/SurfaceWater/HQW.html

Proposed nitrate rule changes for NR151:
https://dnr.wisconsin.gov/topic/nonpoint/nr151nitrate.html

Natural Heritage Inventory: https://dnr.wisconsin.gov/topic/NHI

Wisconsin Wildlife Action Plan: https://dnr.wisconsin.gov/topic/WildlifeHabitat/ActionPlan

U.S. Department of Agriculture:

NRCS web soil survey:
https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

Census of Agriculture:
https://www.nass.usda.gov/Publications/AgCensus/2022/Full_Report/Census_by_State/Wisconsin/index.php

Cropland Data Layer:
https://www.nass.usda.gov/Research_and_Science/Cropland/SARS1a.php

National Agricultural Statistics Service:
https://www.nass.usda.gov/Statistics_by_State/Wisconsin/index.php

U.S. Geologic Survey National Land Cover Database:
https://www.usgs.gov/centers/eros/science/national-land-cover-database

Multi-Resolution Land Characteristics (MRLC) Consortium Enhanced Visualization and Analysis (EVA) Tool:
https://www.usgs.gov/centers/eros/science/national-land-cover-database

Roadside Geology of Wisconsin, 2008, Robert H. Dott, Jr. and John W. Attig

Wisconsin Geological and Natural History Survey:

Karst and Sinkholes fact sheet, 2009: https://home.wgnhs.wisc.edu/wisconsin-geology/karst-sinkholes/

Maps and publications: https://wgnhs.wisc.edu/catalog/

Groundwater resources in Iowa County: Groundwater Susceptibility, 2010, Madeline Gotkowitz

The Driftless Area: The extent of unglaciated and similar terrains in Wisconsin, Illinois, Iowa, and Minnesota, 2023, Eric C. Carson, B. Brandon Curry, Phillip J. Kerr, Barbara A. Lusardi

Depth to Bedrock Map of Iowa County, Wisconsin, 2011, J. T. Carter and M. B. Gotkowitz

University of Wisconsin Stevens Point Well Water Data Viewer:

https://gissrv3.uwsp.edu/webapps/gwc/pri_wells/

Assessing Private Well Contamination in Grant, Iowa, and Lafayette Counties, Wisconsin: The Southwest Wisconsin Groundwater and Geology Study, 2022, Joel Stokdyk, Mark Borchardt, Aaron Firnstahl, Kenneth Bradbury, Maureen Muldoon, Burney Kieke, Jr.

https://wgnhs.wisc.edu/catalog/publication/000996/resource/wofr202302

Climate information:

The Wisconsin Initiative on Climate Change Impacts (WICCI): https://wicci.wisc.edu/

Wisconsin State Climatology Office: https://climatology.nelson.wisc.edu/

National Oceanic and Atmospheric Administration Climate at a Glance County Time Series: https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/county/time-series

ACRONYMS AND ABBREVIATIONS

ATCP 50: Wisconsin Administrative Code- Department of Agriculture, Trade and Consumer Protection- Chapter 50: Soil and Water Resource Management Program
BOD: Biochemical Oxygen Demand
DO: Dissolved Oxygen
CAFO: Concentrated Animal Feeding Operation
COA: Conservation Opportunity Area
CREP: Conservation Reserve Enhancement Program
CRP: Conservation Reserve Program
DATCP: Wisconsin Department of Agriculture, Trade and Consumer Protection
DNR: Wisconsin Department of Natural Resources
EQIP: Environmental Quality Incentives Program
FPP: Farmland Preservation Program
FSA: Farm Service Agency
GIS: Geographic Information System
HUC: Hydrologic Unit Code
HWHQW: Health Watersheds, High-Quality Waters
IBA: Important Bird Area
LCC: Land Conservation Committee
LCD: Land Conservation Department
MOU: Memorandum of Understanding
N: Nitrogen
NMP: Nutrient Management Plan
NOAA: National Oceanic and Atmospheric Administration
NR 151: Wisconsin Administrative Code- Department of Natural Resources- Chapter 151: Runoff Management
NRCS: Natural Resources Conservation Service
P: Phosphorus
PL566: Dams built under the Watershed Protection and Flood Control Act of 1954
SEG: Wisconsin segregated fund revenue
SWIGG: Southwest Wisconsin Groundwater and Geology Study
SWRM: Soil and Water Resource Management
TMDL: Total Maximum Daily Load
TSS: Total Suspended Solids
TWA: Targeted Watershed Assessment
USDA: United State Department of Agriculture
UW: University of Wisconsin
UWSP: University of Wisconsin-Stevens Point