LAND AND WATER RESOURCE MANAGEMENT PLAN

2025 to 2035

Wood County
Land and Water Resource Management Plan

2025 to 2035

Approved by the Wisconsin Land & Water Conservation Board on:

Approved by the Conservation, Education and Economic Development (CEED) Committee on: December 4, 2024

Approved by the Wood County Board on: December 17, 2024

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WOOD COUNTY LAND & WATER RESOURCE MANAGEMENT PLAN

Table of Contents

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PLAN SUMMARY

The management of Wisconsin's natural resources has become exceedingly complex. A myriad of environmental rules and regulations exist at all levels of government to protect the health, safety and welfare of our citizens. People will continue to demand that these natural resources remain abundant and available as well as of high quality. There will need to be a coordinated effort between federal, state, and local natural resource managers to ensure that this demand will be met today and well into the future. The Wood County Land and Water Resource Management Plan is a ten-year plan that provides direction to natural resources managers of all levels of government for the protection and improvement of our natural resources.

In 1997, Wisconsin Act 27 and in 1999, Wisconsin Act 9 amended Chapter 92 of the Wisconsin Statutes, requiring counties to develop Land and Water Resource Management Plans. The intent of this change is to foster and support a locally led process that improves decision-making, streamlines administrative and delivery mechanisms and better utilizes local, state, and federal funds to protect Wisconsin's land and water resources. The purpose of the Wood County Land and Water Resource Management Plan is to:

- Identify and prioritize the major natural resources issues and concerns for Wood County.
- Develop a coordinated effort to resolve these issues and concerns.
- Determine the roles of agencies in implementing the plan.
- Develop strategies, goals, objectives, and outcomes for program years 2025 - 2035.
- Service funding for the management of the natural resource base in Wood County.

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To successfully implement the plan, cost-share funding for farmers will be needed for the installation of Best Management Practices that protect and conserve our natural resources. Additionally, the implementation of this plan is dependent upon having available staff hours to assist farmers in meeting the agricultural performance standards and prohibitions, monitoring, compliance and delivering technical assistance. The Wood County Land and Water Resource Management Plan will accomplish the goals set forth through a coordinated effort aimed at improving program effectiveness at all levels of government.

CHAPTER 1: Introduction

Background

1997 Wisconsin Act 27 and 1999 Wisconsin Act 9 (the 2000-2001 Budget Bill), amended Chapter 92 of the Wisconsin Statues, requiring counties to develop Land and Water Resource Management Plans. The intent of this change is to foster and support a locally led process that improves decision-making, streamlines administrative delivery mechanisms, and better utilizes local, state, and federal funds to protect Wisconsin's land and water resources.

Wood County first developed a Land and Water Resource Management Plan in October 2000 and completed updates in 2007 and 2015. Since the development of the original Land and Water Resource Management Plan, several significant changes have occurred locally and at the state level that will impact how Wood County will implement its soil and water conservation programs. These changes include:

- Use value assessment has been fully implemented in Wisconsin affecting local land use decisions.
- Passage of NR 151 and ATCP 50 creating Agricultural Performance Standards and Prohibitions.
- Creation of ATCP 51 legislation that regulates the siting of new and expanding livestock operations.
- Revisions to NR 243 that regulates operations with 1,000 animal units or more and for permitted operations that discharge to the waters of the state.
- Wood County is participating in the Conservation Reserve Enhancement Program that affects 13 townships.
- The Land Conservation Department closed out the Upper Yellow River Priority Watershed Project in 2005.
- Wood County passed and is administering a nonmetallic mining reclamation ordinance.
- The trend towards more residences in agricultural areas continues, increasing the potential for land use conflicts.

Plan Development and Citizen Participation

In preparation for the development of the original LWRM Plan, the Wood County LCD invited over 75 resource people to identify and prioritize resource concerns for Wood County in June of 1999. In July of 1999 an invitation was sent to all attendees from the local workgroup inviting them to "focus group" meetings. The public was also invited. In April of 1999 a planning survey was included in the spring LCD newsletter.

This process was again completed for the 2007 LWRM plan revision. No significant changes were made from the original LWRM Plan relative to citizen and natural resource hopes and concerns.

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The Plan update initiated in 2014 consisted of consultation with an Advisory Group conducted by e-mail and U.S. Postal Service on September 3, 2014 to update Plan goals, objectives, and action items for implementation over the next five years. This group included the County Agricultural Committee, Wood County Board, DNR, and Wood County Conservation, Education, and Economic Development Committee.

The Citizens Advisory Committee work group met on December 9, 2014. This group looked at a longer planning document of ten years while reviewing the Plan and expressing their resource concerns.

The Plan was approved by the Wood County Conservation, Education and Economic Development Committee on December 18, 2014. The public hearing was also held December 18, 2014. The Plan was sent to the Land and Water Conservation Board (LWCB) and will be reviewed by the LWCB at their February 2015 meeting. The Plan will be presented to the Wood County Board of Supervisors for approval at their February 2015 meeting.

The Plan update initiated in 2024 consisted of consultation with an Advisory Group conducted by email and U.S. Postal Service on May 21, 2024 to update Plan goals, objectives and action items for implementation over the next ten years. This group included Wood County LWCD staff, DATCP, and representative from WDNR.

The Citizens Advisory Committee work group met on June 19, 2024. This group looked at a longer planning document of ten years while reviewing the Plan and expressing their resource concerns. This group included Wood County Board, WiDNR, Wood County staff and Wood County Conservation, Education and Economic Development Committee (CEED).

The Plan was approved by the Wood County Conservation, Education and Economic Development Committee on XXXXXX, 2024. The public hearing was also held on XXXXXXX. The Plan was presented to the Land and Water Conservation Board (LWCB) on XXXXX and approved. The Plan was approved by the Wood County Conservation Education and Economic Development Committee on XXXXXXX. The plan will be presented to the Wood County Board of Supervisors for approval at their December 17, 2024 meeting.

Public Input

The general public was given opportunities to comment on the Land and Water Resource Management Plan at the public hearing held on November 6, 2024.

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Related Resource Management Plans

Several resource management plans have been previously developed that have a relationship to this plan. Data from these plans was reviewed in the preparation of the Wood County Land and Water Resource Management Plan. These include:

- The State of the Black-Buffalo-Trempealeau Basin
- The State of the Central Wisconsin River Basin
- Wood County Land and Water Resource Management Plan (2000, 2007, 2015)
- Upper Yellow River Priority Watershed Project (1992)
- Wood County Farmland Preservation Plan (1982)

CHAPTER 2: County Setting, Natural Resources and Trends

General Characteristics

Wood County, in the Central part of Wisconsin, has a total area of 516,544 acres. Of this total, 507,428 acres is land and 9,116 are water. In 2024, the population of Wood County was 74,100. Wisconsin Rapids, the county seat in the southeast part of the county, had a population of 18,556. Marshfield, the largest city, in the northern part of the county, had a population of 18,642. Twenty-two townships make up the county. Wood County is bordered on the north by Marathon County, on the east by Portage County, on the south by Adams and Juneau Counties, and on the west by Clark and Jackson Counties.

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History and Development

The earliest settlement of Wood County began soon after what is now Wisconsin came under the authority of the United States in 1815. Daniel Whitney, with others, erected a sawmill at what is now Nekoosa in 1831.

The vast stands of quality timber, especially white pine, attracted lumbermen, and the lumber industry grew rapidly. The sandy parts of the county were logged first because the trees there were almost entirely pine, which was the only timber cut by the early lumbermen. Settlers followed the lumbermen, but because the sandy areas were poorly suited to farming, the settlers soon moved to the northern part of the county, where soils are finer textured. They frequently burned the hardwood timber to clear the land for farming.

Wood County was created in 1856 from a part of Portage County. Several boundary changes followed until 1872, when the present boundaries were established.

Wheat and rye were the principal crops at first, but about the turn of the century dairying began to increase in importance. Butter was the main dairy product, but cheese soon became more important. In 1925, more than 12 million pounds of cheese was produced in Wood County.

The culture of cranberries began in the early 1870's, and today Wood County is the leading cranberry producing county in Wisconsin.

Paper mills replaced sawmills as the era of lumbering drew to a close. Numerous sites on the Wisconsin River between Nekoosa and Biron provide waterpower to operate the paper mills. The river supplies the vast quantities of water needed in making paper. Paper is now the principal industrial product in Wood County. (The Wisconsin Rapids paper mill closed in June 2020.)

The census of 1860, the first to include Wood County, showed a population of 2,425 people. By 1900 the population was 25,865, of which about one-third was in urban areas. In 1950, 50,000 people lived in the county, and slightly more than half were classified as urban residents.

Climate

The Soil Survey of Wood County Wisconsin (1977) states that Wood County winters are long, cold, and snowy and summers are warm and occasionally humid, and spring and fall are sometimes short and are mixtures of summer and winter.

An average of nine days a year have temperatures of 90° F or higher. An average of 32 days a year have temperatures of 0° F or lower. Heat growth units during the growing season, about 50° F threshold, average 2,240.

Approximately 60 percent of the annual precipitation falls in May through September. Total annual precipitation is about 31 inches. The annual snowfall averages 50 inches, but has ranged from 22 inches in 1958 to 81 inches in 1956.

Prevailing winds are from the west and northwest in winter and from southerly directions in summer. The sun shines an average of 60 percent of the time possible in summer and winter. The average date of the last 32° freeze in spring is May 17, and of the first in fall, September 27.

Soils

The use and management of soil has many impacts on the communities in Wood County. Soil forms the foundation that all other ecosystems depend on – plant life, wildlife, streams, wetlands, and lakes. Soils may also pose limitation to our use of the land in activities such as agricultural production, forestry, building development, and road construction.

The soils in the northern two-thirds of Wood County formed in “two-storied” parent material. That is, the upper 20 to 26 inches of the soils formed in silty wind-laid material, and the lower part of the soils formed either in glacial till or in residuum weathered from underlying bedrock.

If a line were drawn east and west approximately through Wisconsin Rapids, it would roughly separate the loamy soils north of the line from the sandy soils south of the line. The loamy soils have a cap of wind laid silty material that averages about 24 inches in thickness.

In the northwestern part of the county, the soils formed partly in the underlying loamy glacial till. These are soils of the Withee, Marshfield, Santiago, and Mann series.

In the northeastern part of the county, the material below the silty cap is loam residuum weathered from the underlying gneissic rock. Milladore, EauPleine, and Sherry soils formed in this silt and residuum.

An area north of Powers Bluff in Richfield and Arpin Townships and areas in Sigel, Sherry, and Rudolph Townships have soils that formed partly in underlying clayey residuum weathered from schistose bedrock. These are soils of the Dolph and Altdorf series.

A broad belt across the middle of the county is soils that formed in the silty cap and underlying layers of residuum from weakly cemented sandstone and acid clay shale. These are soils of the Kert, Vesper, Hiles, and Veedum series.

Most of the soils in the southern part of the county formed in sandy material deposited by glacial melt waters along the Wisconsin River or in Glacial Lake Wisconsin. Soils of

the Nymore, Plainfield, Friendship, Meehan, and Newson Series formed in these materials.

Some small areas in the southern part of the county are soils that formed in residuum weathered from sandstone. These are soils of the Plainbo, Eleva, and Elkmound series.

Some soils in Wood County formed in organic material that accumulated in depressions. Markey, Cathro, Rifle, Dawson, and Greenwood soils formed in this kind of material.

The USDA-Natural Resources Conservation Service, formerly known as the Soil Conservation Service (SCS) has grouped the soils of Wood County into eleven major soil associations. Their location can be seen on Map 2-1 and they include:

Withee – Marshfield – Santiago Association
The soils of this association are on the glacial ground moraine in the northern and northwestern parts of the county.

- Current land cover: Most of this association is cultivated, but woodlots are common.
- Other important features: In recent years extensive residential development has taken place in parts of this association.

Milladore – Eaupleine – Sherry Association
The soils of this association are on broad upland plains in the northeastern part of the county and around Rudolph.

- Current land cover: Most of this association is cultivated, but some areas are in woodlots.
- Other important features: Most of the soils of this association have a seasonal high water table. The potential for recreational use is moderate to good.

Dolph – Altdorf Association
The soils of this association are on broad upland plains around Rudolph and Powers Bluff.

- Current land cover: About half of this association is cultivated, and the rest, mostly on wetter sites, is in woodland or native pasture.
- Other important features: Most of the soils of this association have a seasonal high water table and are wet in spring.

Fenwood – Rietbrock Association
This association consists of soils on prominent hills in the north-central and west-central parts of the county.

- Current land cover: Most of this association is in woodland and native pasture.
- Other important features: Potential for recreational use is good.

Vesper – Kert Association
The soils of this association are on the upland plain in a broad belt across the middle of the county.

- Current land cover: About 60 percent of the association is cultivated. The rest is in woodland, native pasture, or wildlife habitat.
- Other important features: Much of this association has good potential for wildlife habitat.

Elm Lake – Merrillan Association
The soils of this association are on the northern edge of Glacial Lake Wisconsin in the area west of Dexterville and in a small area west of Wisconsin Rapids.

- Current land cover: Most of this association is in woodland, but some small areas are cultivated.
- Other important features: This association has moderate potential for woodland and good potential for wildlife habitat.

Plainfield – Friendship Association
The soils of this association are on outwash plains on either side of the Wisconsin River and extend from the vicinity of Wisconsin Rapids southward.

- Current land cover: Most of this association is in woodland.
- Other important features: This association has good potential for irrigated crops.

Newson – Meehan Association
Most of the soils of this association are on nearly level outwash plains and glacial lakebeds east of Wisconsin Rapids and in the southwestern and south-central parts of the county.

- Current land cover: Most of this association is in woodland. Some areas were once cultivated but have been planted to trees or have reverted to woodland.
- Other important features: This association has good potential for wildlife habitat.

Markey – Rifle Association
The soils of this association are on the glacial lake plain in the south-central part of the county and in a small area in the northeastern part of the county.

- Current land cover: Most of this association is in woodland or wildlife habitat. A few small areas are used for native pasture and large areas are in cranberries.
- Other important features: These soils have good potential for use as wildlife habitat.

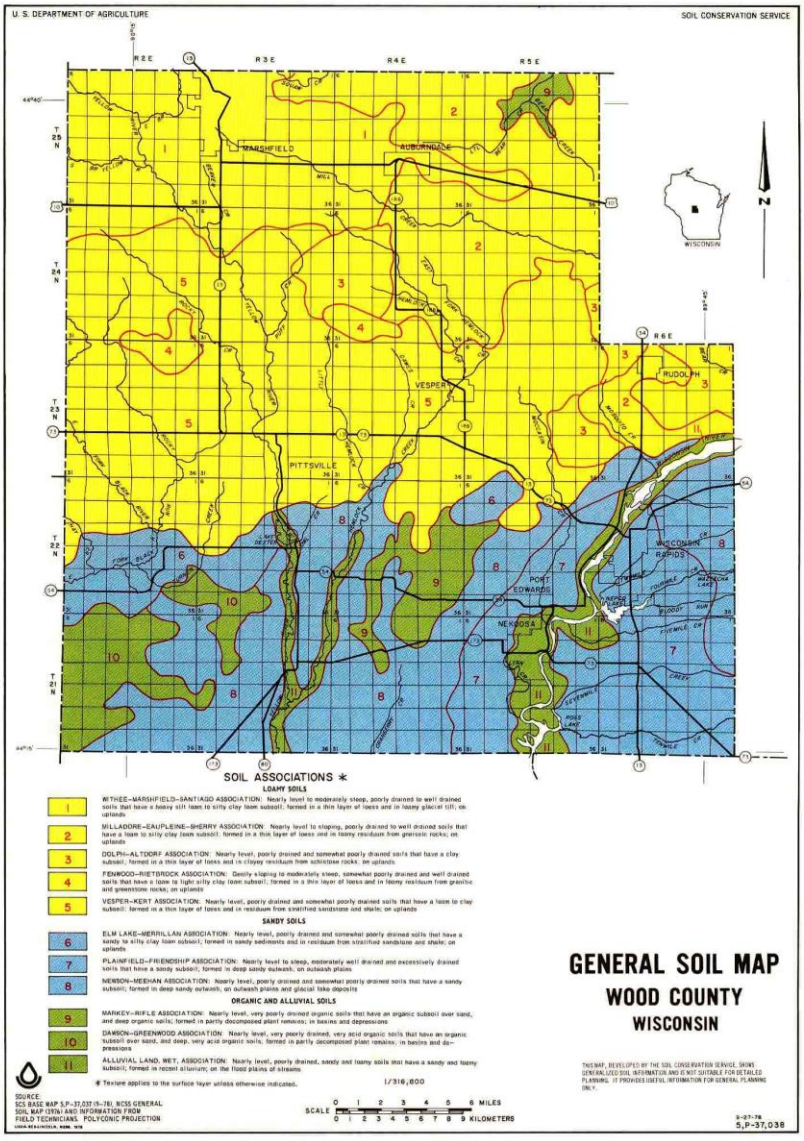
Dawson – Greenwood Association
The soils of this association are on the glacial lake plain in the extreme southwest part of the county.

- Current land cover: Most of this association is in woodland or wildlife habitat. Some areas are used for growing cranberries.
- Other important features: These soils have good potential for wildlife habitat.

Alluvial land, wet Association
This association consists of bottomlands, islands, and sloughs along the Wisconsin and Yellow Rivers.

- Current land cover: Most of this association is in woodland and wildlife habitat, but some areas are in native pasture.
- Other important features: Floods are frequent and the water table is high.

Map (2-1)



Focus on Soil Health

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FP Strategy

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Wood County DNR Proposed Sensitive Areas for Nitrate Contamination

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Jen McNelly – nitrogen sustainability in plan and set goals

Commented [BAP4]: NEW SECTION – CHANGE TITLE AS NEEDED – move wherever needed BUT HAVE BARB MOVE IT

ARPA Grant

Include in plan – i.e. 125 wells in Wood Co but note "contingent upon funding"

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Added new map (include reference #)

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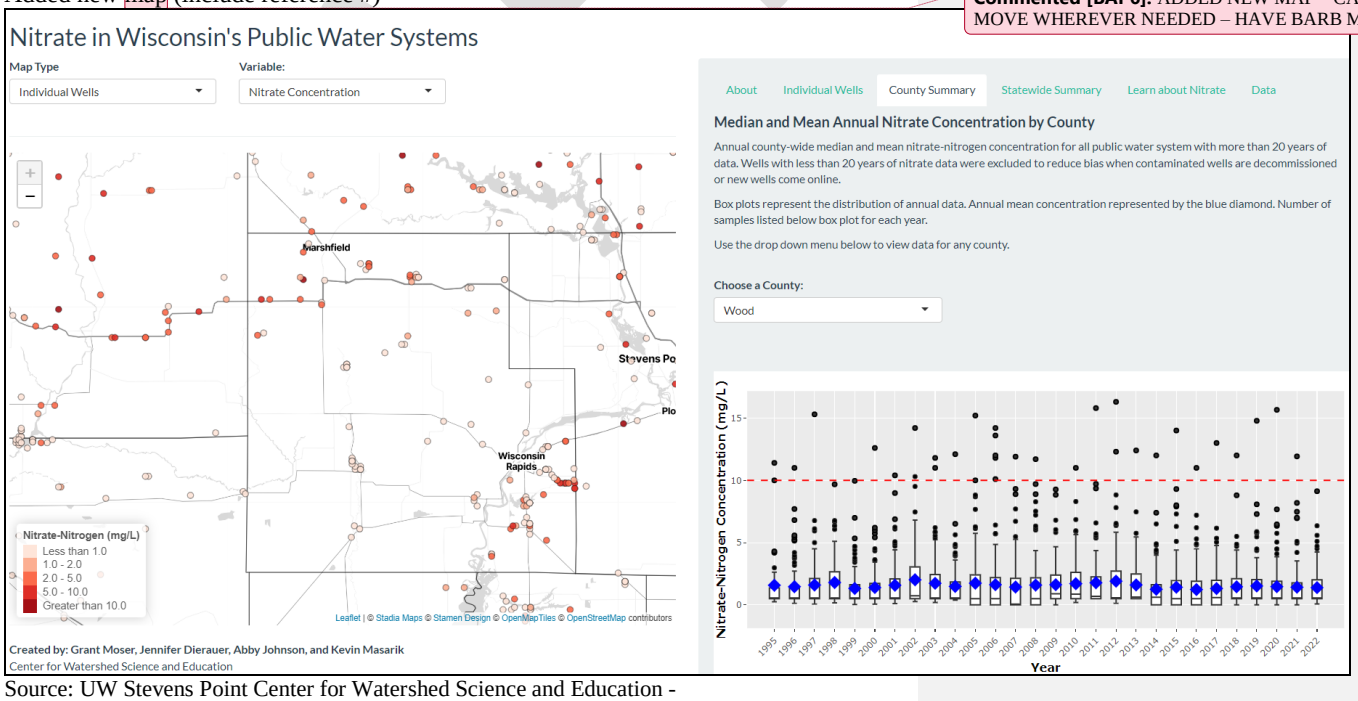

Source: UW Stevens Point Center for Watershed Science and Education - https://www3.uwsp.edu/cnr-ap/watershed/Pages/nitrate_trends.aspx

Added new map (include reference #)

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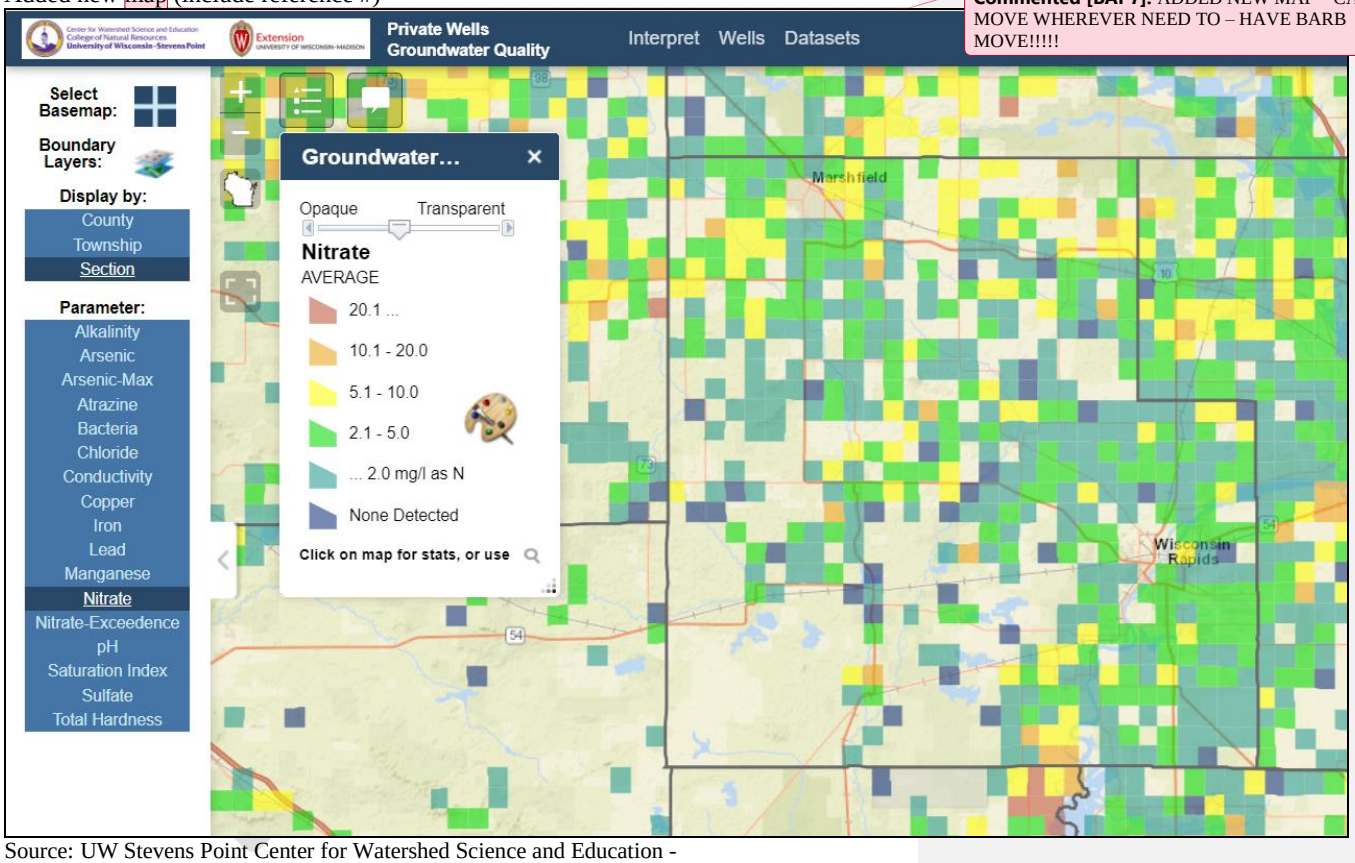


Source: UW Stevens Point Center for Watershed Science and Education - https://www3.uwsp.edu/cnr-ap/watershed/Pages/WellWaterViewer.aspx

Woodland

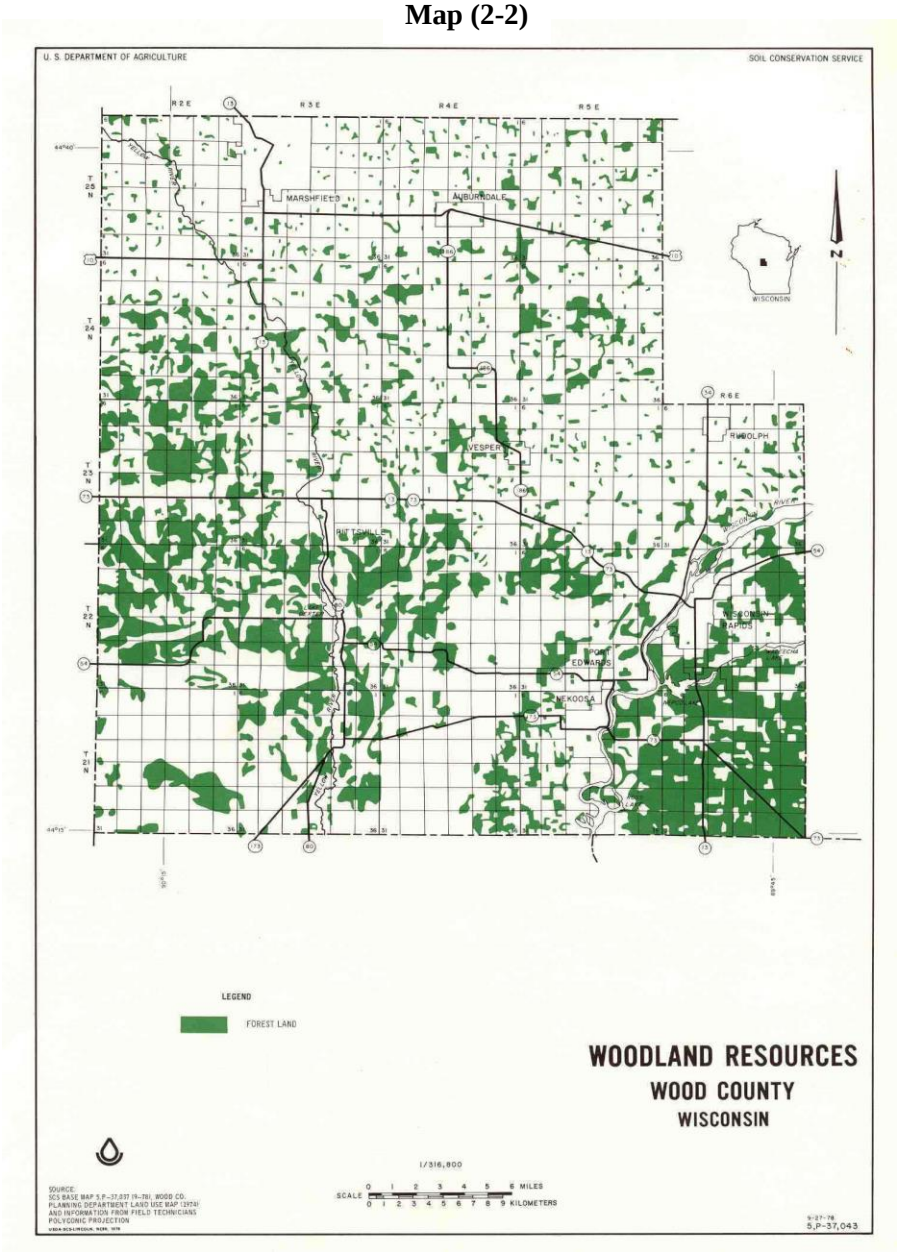
Woodland is one of the most prominent land cover features found in Wood County. Woodlands are important to the county's resource base, culture, and economy. Woodland serves many functions, adds value to both the local economy and quality of life. They provide wildlife habitat, recreational opportunities, timber, and pulpwood.

Woodlands occupy a major portion of the land area in Wood County with aspen, oak, maples, white birch, white pine, and red pine being the dominant species. Much of the forests are used by the paper mills for huge amounts of pulpwood, which is vital for paper production. There are also a significant number of tree farms specializing in Christmas trees located in the southern part of the county. Of the 516,544 acres in the county, 215,400 acres or 42 percent are classified as woodland (see map 2-2). The county forest contains 37,536 acres of woodland. In the 1850's county forests were covered primarily with stands of white pine and tamarack. Between 1850 and the early 1930's when the county first acquired forestland, portions of the county were cutover, drained, burned, and farmed. Because of soil condition many farms failed, leaving tax delinquent lands with acquisitions beginning in the 1930's. The Wood County Forest generates significant revenues for the county, primarily through pulpwood harvests.

An increasing share of the property tax burden continues to shift to forestland owners, primarily due to use-value assessment and the rising assessed value of forestland. Use-value assessment is lowering the property tax burden for owners of agricultural land, thus placing more demand on non-agricultural properties. Rising property taxes for forestland owners have led to a sharp increase in Managed Forest Law (MFL) program enrollment. This WDNR program provides a property tax break for forest owners who agree to adopt a forest management plan.

As one of only 29 counties with county forestland, the Wood County Forest is a unique community resource. The landscape of the county forest supports thriving forest communities and abundant recreational opportunities. Hunting, fishing, hiking, biking, camping, canoeing, kayaking, ATVs, snowmobiles, snowshoeing, boating, cross-country skiing, bird watching, and sightseeing are all important elements of Wood County's culture and economy that are supported by the County Forest.

Map (2-2)


U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
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MARSHFIELD
AUBURNDALE
VESPER
WOLFORD
EDWARDS
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0 1 2 3 4 5 6 MILES
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SOURCE:
POLYCONIC PROJECTION
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Farmland and Agriculture

Farming in Wood County has undergone considerable change in the last few decades. According to the 2022 Census of Agriculture, Wood County lost 14 percent of its farms and 2 percent of its farmland between 2017 and 2022. However, the average size of a farm was 238 acres in 2022, a 15% increase since 2017 in Wood County. ~~During this period, the number of hog farms dropped by almost 40 percent, dairy farms fell by 52 percent and farms with any harvested cropland declined by more than 17 percent according to the 2012 Census of Agriculture. Meanwhile, when dairy and hog farm number declines are removed from the equation, census results show that there was actually significant growth in part-time and hobby farm numbers during the same period in Wisconsin.~~

The most recent Census of Agriculture (2022) reported the top four agriculture commodities in Wood County based on value of sales as follows: 1) livestock, poultry and their products ($117,536,000); 2) milk from cows ($97,291,000); 3) crops, including nursery and greenhouse crops ($93,019,000); and 4) fruits, tree nuts, and berries ($41,165,000). Wood County ranks number one in Wisconsin for cranberry production.

Crop Production

Over the long term, levels of crop production have been relatively stable for the majority of commodities. Crop production and crop acreage for Wood County is reported below:

- farms 909 units
- land in farms 216,635 acres
- average size of farm 238 acres
- alfalfa and other forage 45,800 acres
- corn for grain 33,513 acres
- soybeans 26,778 acres
- corn silage 9,251 acres
- cranberries 5,178 acres
- oats for grain 409 acres
- Christmas trees 286 acres
- wheat for grain 2,754 acres
- maple syrup 6,894 taps

Dairy

The 2022 Wisconsin Agriculture Statistics report states that there are 132 dairy herds in Wood County. This represents a decrease from the 2012 report, which shows that Wood County had 235 dairy herds. The following contains additional information regarding cow numbers and production in Wood County.

- number of dairy cows 17,100
- milk per cow (pounds) 23,200
- total milk produced (pounds) 396,720

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Other Livestock

Although the dairy industry is the largest in Wood County, other farm operations produce hogs, sheep and horses. The following contains information regarding these other animal types.

- total cattle (beef, dairy & calves) 44,174
- hogs and pigs 577
- horse & ponies 777
- sheep & lambs 1,239
- Goats 411
- Poultry 3,904
- Honey bees (number of colonies) 36,874

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Agriculture Connections

Agriculture not only produces food and fiber, but is also linked to many other components of the economy. Agriculture supports equipment and implement manufacturers and dealers, the vegetable and meat processing industries, the construction trade, trucking, veterinary services, genetic research, and many others.

Agriculture is connected to Wisconsin's culture and heritage. Barns, cows, fields, and silos paint the scene that so many define as Wisconsin's rural character. Farm families include some of the earliest settlers of many areas and provide a sense of continuity to a community. Public opinion surveys conducted by the American Farmland Trust, the U.S. Department of Agriculture, the American Farm Bureau, Wisconsin counties, and other local units of government show that Wisconsin citizens place a high value on the presence of agriculture and agriculture lands.

Agriculture has many considerations relative to the natural environment, both positive and negative. Farms provide green space, wildlife habitat, enhanced groundwater recharge, and nutrient recycling. Farms can also be sources of soil erosion, polluted runoff, odors, and damage to riparian areas. Agriculture is connected to other land uses. The interaction between farms and rural residential development has impacted land values, property taxes and the right to farm. The distance from farm related services, markets for farm commodities, processing industries, and other critical land uses can determine the long-term success of an agricultural area.

State of Dairy in Wisconsin

Dairy farming is vital to the total agriculture picture in Wisconsin. Milk sales account for 43.5% of Wisconsin farm cash receipts. According to the Wisconsin Agriculture Statistics Service, significant trends in Wisconsin's dairy industry include decreasing numbers of dairy farms, decreasing numbers of cows, increasing milk production, and a shift toward large farms and herds. The number of Wisconsin dairy farms has dropped from more than 140,000 in the 1950s to 6,350 in 2022. At the same time the average herd size grew from 20 cows in the 1950s to 200 in 2022. The total number of dairy cows in Wisconsin has held steady over the past decade at around 1.2 million dairy cows.

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The State of Wisconsin is now producing more milk with fewer cows. In contrast to the declining numbers of farms and cows, milk production has been on the rise over the long term. Wisconsin's milk production has declined since 2000, most likely due to

devastating milk pricing, but since the 1950s, milk production has increased by more than 50%.

The trend toward larger farms and herd sizes has grown out of the need to experience greater scales of economy. Larger dairies are able to produce greater volumes of milk and are therefore able to tolerate a smaller profit margin. The only growth in dairy farm numbers since 1997 has been in farms with more than 100 cows, with the most significant growth in farms with 200 or more cows. Wisconsin had 242 permitted dairies with over 1,000 cows in 2012.

A nation-wide shift in milk production from the Midwest to Western states is continuing to occur. Since the 1970s, Idaho, New Mexico, and Washington have replaced Iowa, Ohio, and Missouri in the top 10 milk producing states. In 2002 the western states (California, Idaho, and Washington) were responsible for 29% of U.S. milk production. By 2011, these states were responsible for 31%. The share of milk production coming from the Midwest experienced the opposite trend. Midwest states in the top 10 for milk production include Wisconsin, Michigan, and Minnesota. These three states were responsible for 24% of U.S. milk production in 1998, 21% in 2002, and 22% in 2011.

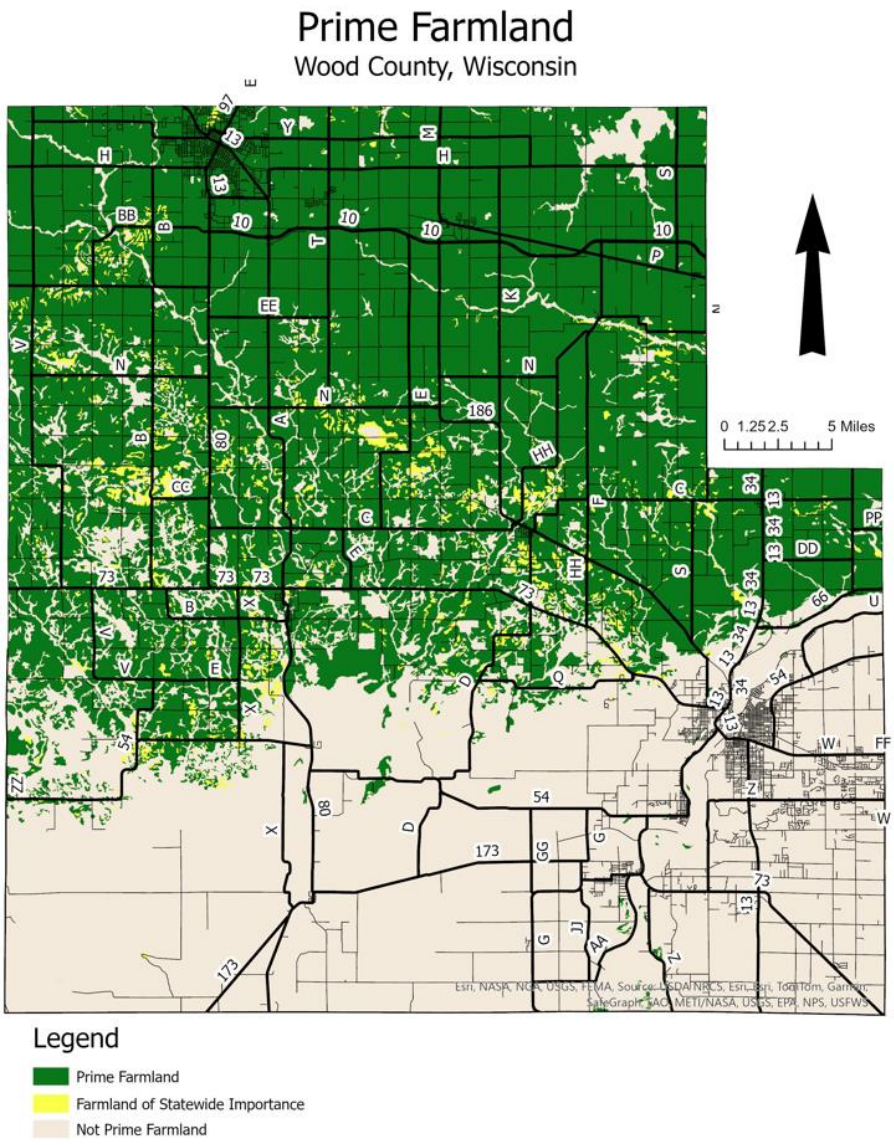
The geographic shift also appears to be influenced by the scale of economies, as Western states have a greater share of the nation's large dairy farms. In 2011, operations with 500 or more cows were responsible for 63% of U.S. milk production. The State of Wisconsin trails both California and Idaho in number of dairy farms with 500 or more cows.

There is a growing risk of losing the Midwest's dairy processing infrastructure with the continued geographic shift in milk production to Western states. On a positive note, Wisconsin continues to lead the nation in the production of most varieties of cheese, organic dairy production, and total cheese. Wisconsin's strengths in retaining its local and regional processing infrastructure include continued growth in the total amount of milk produced each year, close proximity to Eastern U.S. population centers, and a large specialty cheese processing industry.

Prime Farmland

Prime farmland soils (See map 2-3), displays information regarding prime agricultural soils in Wood County. The U.S.D.A. Natural Resources Conservation Service identifies prime farmland soils as those soils with the fewest limitations for agricultural operations. Limitations to agriculture include high erodibility, extreme wetness, low moisture holding capacity and low productivity. Soils characterized, as "prime if drained" would be well suited to agriculture if extreme wetness can be overcome with drainage. Prime farmland soils are mostly found north of a line drawn from Wisconsin Rapids west through Pittsville. However, the greatest concentration of non-drained prime farmland is found north of Auburndale and Milladore in the northeast part of Wood County.

Map (2-3) updated



Physiology, Geology, and Drainage

Wood County lies in two geographic provinces of Wisconsin. The northern one-third is part of the Northern Highland, and the rest of the county is part of the Central Plain according to the Soil Survey of Wood County, Wisconsin.

In general, the Northern Highland region has underlying bedrock that consists of Precambrian crystalline rocks. The western half of this region has a mantle of heavy loam glacial till over bedrock. The rest of this region has, over the bedrock, a layer, which varies in thickness; this layer is loamy residuum weathered from Precambrian rock. The entire region was covered by a layer, about two feet thick of wind-deposited silt.

The central plain region has underlying bedrock that consists of Cambrian sandstone interbedded with varying amounts of shale. The shale layers are generally thin or absent in parts of Sigel and Hansen Townships, but are thick and very prominent in the western part of the county. Glacial till covers the sandstone and shale in the northwestern part of the county and on a few broad, low ridges south of Powers Bluff, but the rest of the Central Plain in Wood County is residual. One to two feet of loess cover the entire region except the lake plain and outwash parts.

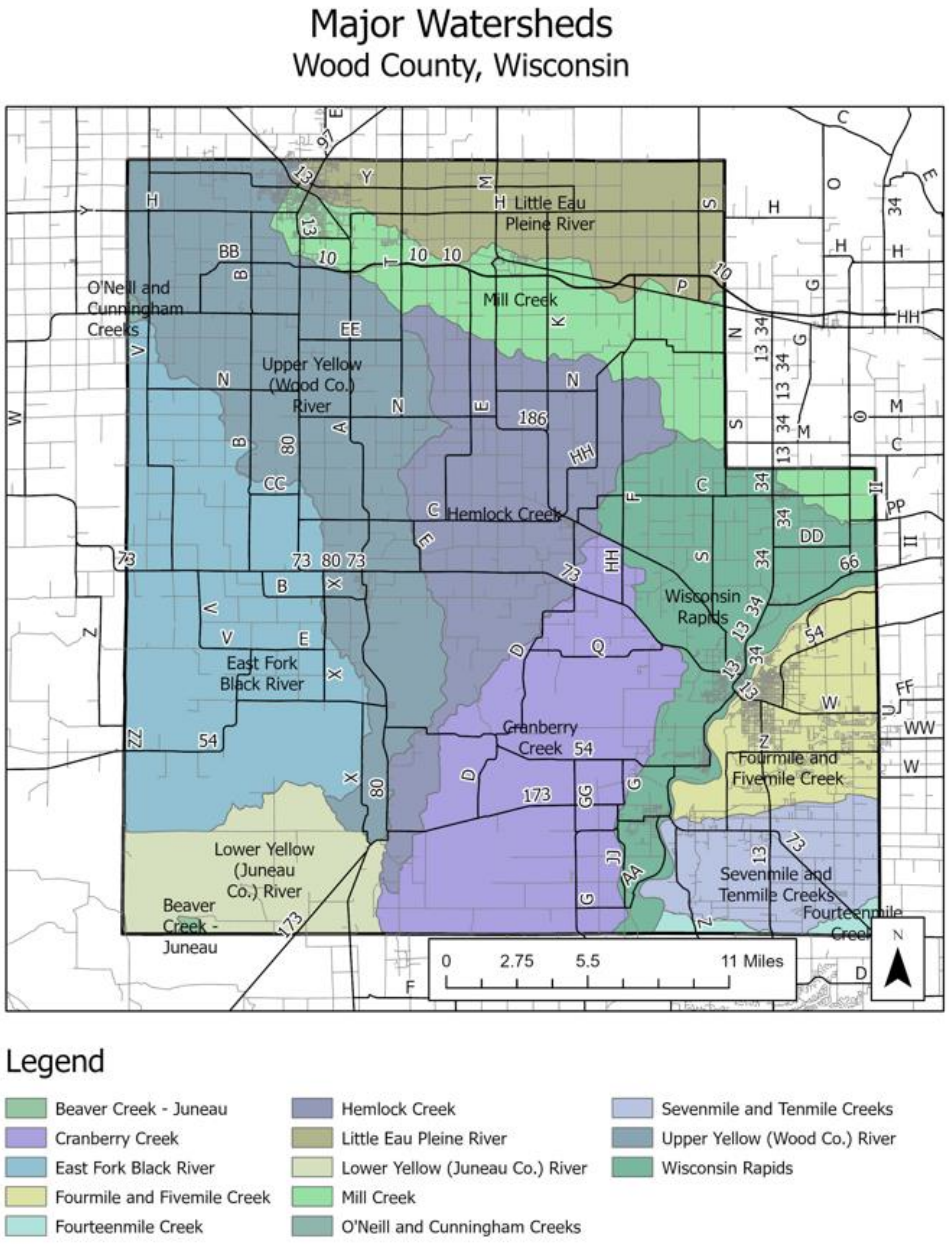
Wood County is drained by four primary drainage systems. The Wisconsin River flows through the southeastern quarter of the county and intercepts a number of small creeks that drain the eastern part of the county. Mill Creek flows eastward from Marshfield, draining part of northern Wood County. The Yellow River and Hemlock Creek system, which flows southward, drains the central and largest part of the county. The extreme western part of the county is drained by the westward-flowing East Fort of the Black River. A few small creeks in the extreme northern part of the county flow northward into the Little Eau Pleine River in adjoining Marathon County. The watershed divides are generally low and ill-defined, as is characteristic of an area of low relief and somewhat poorly drained or poorly drained soils.

Watersheds and Drainage

A watershed can be defined as an interconnected area of land draining from surrounding ridge tops to a common point such as a lake or stream confluence with a neighboring watershed. All lands and waterways can be found within one watershed or another. Wood County watersheds are shown in (map 2-6). In Wisconsin, watersheds vary in scale from major river systems to small creek drainage areas and typically range in size from 100 to 300 square miles. River basins encompass several watersheds. There are 32 river basins in Wisconsin, which range in size from 500 to over 5,000 square miles. Wisconsin's 32 river basins are then divided in 23 geographic management units. These units or "GMUs" are the basis for the reorganized DNR and form the nucleus around which programs are implemented in the regions.

Wood County is located within two geographic management units (GMUs) including the Black-Buffalo-Trempealeau, and the Central Wisconsin GMU. Within these GMUs, Wood County is located within two different river basins including the Central Wisconsin River Basin and the Black River Basin. Within these basins, ten distinct watersheds can be found.

Map (2-6) updated



Wetlands

According to Wisconsin State Statues, Chapter NR 103, wetlands are areas which water is at, near, or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation and which has soils indicative of wet conditions.

Wetlands may be seasonal or permanent and are commonly referred to as swamps, marshes, fens or bogs. Wetland plants and soils have the capacity to store and filter pollutants ranging from pesticides to animal wastes. Wetlands provide storage of floodwaters preventing damage to developed areas. Wetlands can make lakes, rivers, and streams cleaner, and drinking water safer. Wetlands also provide valuable habitat for fish, plants, and animals.

As is the case statewide and nationally, Wood County has experienced a decline in the number of quality wetlands. According to the WDNR, there are 130,725 acres of wetland in Wood County or 25.8% of total acres in the county. WDNR mapped wetlands for Wood County are shown in (map 2-7).

Construction of new and expanded cranberry beds has traditionally been done in wetlands. Now, however, new construction is usually done in upland soil types, avoiding wetlands.

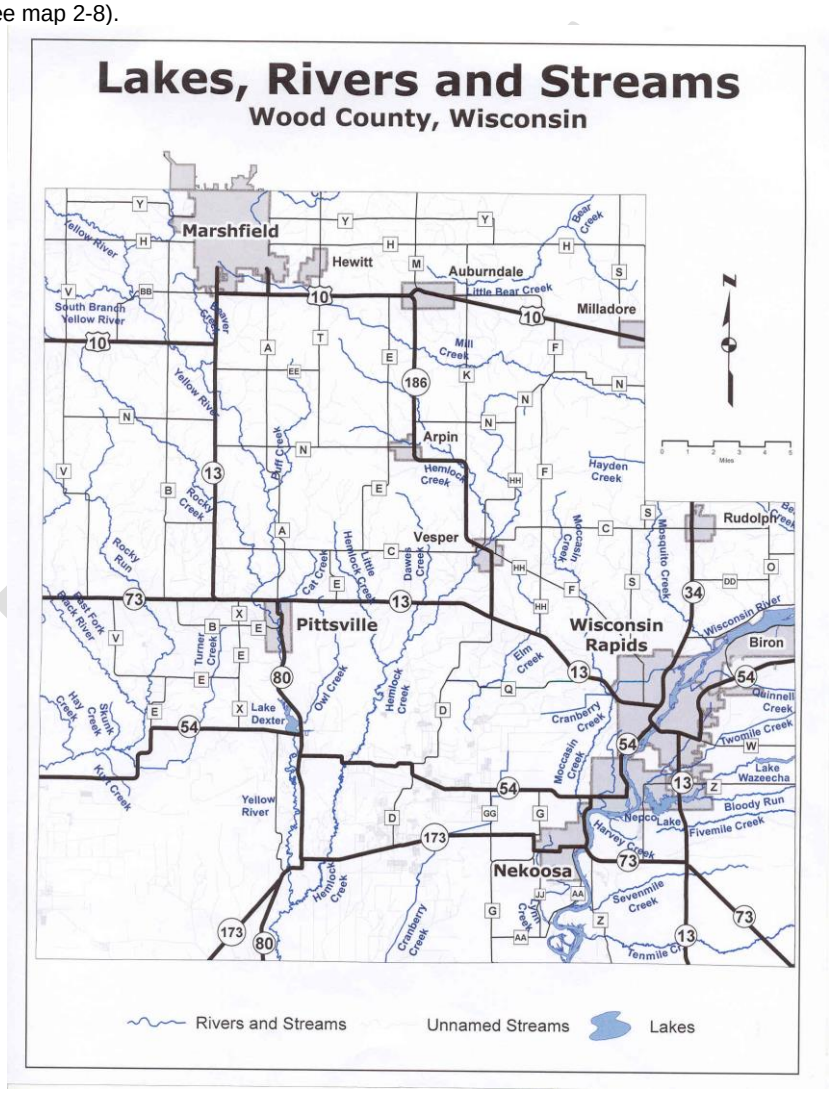
The Wisconsin DNR and the US Army Corp of Engineers require mitigation when natural wetland sites are destroyed. Several mitigations have taken place in Wood County during the past ten years. In many cases, the mitigated wetlands are of lesser quality than the destroyed wetlands.

Map (2-7) updated

Surface Water Resources

Wood County has a total water surface of 16,113 acres, which includes 28 named lakes, 102 unnamed lakes/flowages and 44 streams. Except for cranberry flowages, Wood County has very few lakes. Major lakes include Lake Wazeecha, Nepco Lake and Dexter Lake. All of these are impoundments.

The total stream length is 405 miles. Of this total, 39.0 miles are classified as trout streams with 15.0 miles of Class I trout streams. Major rivers in the county include, the Yellow River, Hemlock Creek, Mill Creek, East Fork Black River and the Wisconsin River (see map 2-8).



Map (2-8)

Commented [KK8]: Converted Shape_Area in square meters to acres from DNR 24k_Hydro_Waterbodies_(Open Water) data. This includes all named and unnamed surface water in the county.

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Commented [KK9]: Data taken off of DNR lakes website.

Commented [KK10]: Includes only named streams. 329 streams with WBICS not including 1st order streams. 1,197 streams w/WBICS including all stream orders.

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Commented [KK11]: Includes only named stream miles. If all streams are included, there would be 1,848 miles. If All 1st order streams were excluded and unnamed streams were still included, there would be 837 miles.

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Impaired Waters

The listing of waters under the Clean Water Act (s.303(d)) must, under current U.S. Environmental Protection Agency (EPA) requirements, occur every two years. This list identifies waters which are not meeting water quality standards, including both water quality criteria for specific substances or the designated uses, and is used as the basis for development of Total Maximum Daily Loads (TMDLs) under the provisions of section 303(d)(1)(c) of the Act. The 303(d) list has been characterized as an impaired waters list.

There are twenty-five listed impaired water bodies in Wood County, according to the WDNR. These waters are listed within Wisconsin's 303(d) Water-body Program and are managed by the WDNR's Bureau of Watershed Management. They include Brion Flowage, Dexter Lake, South Branch O'Neil Creek, Wisconsin River, Bear Creek, Beaver Creek, Cat Creek, Dawes Creek, East Branch Yellow River, East Fork Hemlock Creek, Flick Creek, Hemlock Creek, Little Bear Creek, Little Hemlock Creek, McMillan Creek, Mill Creek, Moccasin Creek, Puff Creek, Rocky Creek, South Branch Yellow River, South McMillan Creek, Yellow River, and three unnamed creeks.

Waterbody Name	Water Type	Start Mile	End Mile	Size (Miles or Acres)	Pollutants (Causes)	Impairments (Observed Effects)	Watershed Name
Bear Creek	River	0	11.7	11.7	Total Phosphorus	High Phosphorus Levels	Mill Creek
Beaver Creek	River	0	4	4	Total Phosphorus	High Phosphorus Levels, Impairment Unknown	Upper Yellow River
Beaver Creek	River	4	6.2	2.2	Total Phosphorus	High Phosphorus Levels	Upper Yellow River
Biron Flowage	Impoundment			2,187	Perfluorooctane sulfonate (PFOS)	PFOS Contaminated Fish Tissue	Wisconsin Rapids
Cat Creek	River	0	2.3	2.3	Total Phosphorus	High Phosphorus Levels	Upper Yellow (Wood Co.) River
Dawes Creek	River	0	7.8	7.8	Total Phosphorus	Impairment Unknown	Hemlock Creek
Dexter Lake	Impoundment			286.7	Escherichia Coli (E. Coli)	Recreational Restrictions - Pathogens	Upper Yellow (Wood Co.) River
Dexter Lake	Impoundment			286.7	Total Phosphorus	Eutrophication, Excess Algal Growth	Upper Yellow (Wood Co.) River
East Branch Yellow River	River	0	8.8	8.8	Total Phosphorus	Impairment Unknown	Upper Yellow (Wood Co.) River
East Fork Hemlock Creek	River	0	11	11	Total Phosphorus	Impairment Unknown	Hemlock Creek
Flick Creek	River	0	1.4	1.4	Total Phosphorus	High Phosphorus Levels	Wisconsin Rapids
Hemlock Creek	River	0	27	27	Total Phosphorus	Degraded Biological Community	Hemlock Creek
Hemlock Creek	River	27	32.9	5.9	Total Phosphorus	High Phosphorus Levels	Hemlock Creek
Little Bear Creek	River	0	1.5	1.5	Total Phosphorus	Degraded Biological Community	Little Eau Pleine River
Little Bear Creek	River	1.5	8	6.5	Total Phosphorus	Impairment Unknown	Little Eau Pleine River
Little Hemlock Creek	River	0	10.4	10.4	Total Phosphorus	High Phosphourus Levels	Hemlock Creek
McMillan	River	0	8.7	8.7	Total Phosphorus	Impairment Unknown	Little Eau Pleine River

Commented [BAP12]: NOTES FROM KENDRA: Kendra his list of impaired waters.

There are no ORWs or ERWs listed for Wood County in NR 102

There are Wood County waters listed on the Healthy Watersheds, high quality waters list.

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Deleted: South Branch O'Neil Creek, and Hemlock Creek.

Deleted: The Wisconsin River is on the list because of mercury contamination and PCB's. The Yellow River, Mill Creek, Hemlock Creek, and the South Branch of O'Neil Creek are on the list because of total phosphorus. Lake Dexter is on the list because of total phosphorus and E. coli. ¶

Creek							
Mill Creek	River	16	32.8	16.8	Total Phosphorus	Low Dissolved Oxygen	Mill Creek
Moccasin Creek	River	5	19.1	14.1	Total Phosphorus	Impairment Unknown	Wisconsin Rapids
Puff Creek	River	0	7.7	7.7	Total Phosphorus	Degraded Biological Community	Upper Yellow (Wood Co.) River
Rocky Creek	River	0	12.2	12.2	Total Phosphorus	Impairment Unknown	Upper Yellow (Wood Co.) River
South Branch O'Neill Creek	River	0	18.1	18.1	Total Phosphorus	High Phosphorus Levels	O'Neill and Cunningham Creeks
South Branch Yellow River	River	0	17.5	17.5	Total Phosphorus	Degraded Biological Community	Upper Yellow (Wood Co.) River
South McMillan Creek	River	0	8	8	Total Phosphorus	High Phosphorus Levels	Little Eau Pleine River
Unnamed	River	5	7.9	2.9	Total Phosphorus	High Phosphorus Levels	Upper Yellow (Wood Co.) River
Unnamed	River	0	5	5	Total Phosphorus	Impairment Unknown	Upper Yellow (Wood Co.) River
Unnamed	River	0	1.9	1.9	Total Phosphorus	Degraded Biological Community	Upper Yellow (Wood Co.) River
Unnamed	River	0	1.3	1.3	Total Phosphorus	Impairment Unknown	Upper Yellow (Wood Co.) River
Yellow River	River	8.4	39.1	30.7	Total Phosphorus	Impairment Unknown	Lower Yellow (Juneau Co.) River
Yellow River	River	39.1	50	10.9	Total Phosphorus	High Phosphorus Levels	Upper Yellow (Wood Co.) River
Yellow River	River	53	83.1	33.1	Total Phosphorus	High Phosphorus Levels	Upper Yellow (Wood Co.) River
Wisconsin River	River	188	204.4	16.4	Cause Uknown	Degraded Biological Community	Fourteenmile Creek
Wisconsin River	River	188	204.4	16.4	Polychlorinated Biphenyls (PCBs)	PCBs Contaminated Fish Tissue	Fourteenmile Creek
Wisconsin River	River	204.4	223.7	19.3	Mercury	Mercury Contaminated Fish Tissue	Wisconsin Rapids
Wisconsin River	River	204.4	223.7	19.3	Polychlorinated Biphenyls (PCBs)	PCBs Contaminated Fish Tissue	Wisconsin Rapids

Outstanding and Exceptional Waters

Wisconsin has classified many of the State's highest quality waters as Outstanding Resource Waters (ORWs) or Exceptional Resource Waters (ERWs). Chapter NR 102 lists the ORWs and ERWs. The WDNR conducted a statewide evaluation effort in the early 1990's to determine which waters qualified for ORW and ERW classification. By 2006, a significant number of waters were added to Chapter NR 102 as ORWs and ERWs. Wood County has 15.0 miles of Class I trout water classified as exceptional resource waters. This would include 5.0 miles of Bloody Run Creek, 2.3 miles of Fivemile Creek 1.5 mile of Lynn Creek, 3.0 miles of Rocky Creek, and 3.2 miles of Sevenmile Creek.

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Healthy Watersheds, High Quality Waters

In 2022, the Wisconsin Department of Natural Resources published the Healthy Watersheds, High-Quality Waters Action Plan which identifies and shifts focus to protecting the healthy water resources of Wisconsin. In 2021, DNR staff identified high

quality lakes, rivers, and streams, healthy wetlands, and rare and unique wetlands for each county in Wisconsin. Figure #.# shows Wood County's healthy watersheds and high-quality waters.

2021 High-Quality Waters: Lakes, Rivers, Streams

Wood County - 7 High-Quality Waters identified in 2021
Data sorted by alphabetical county and alphabetical waterbody name

OFFICIAL NAME	LOCAL NAME	WBIC	PRIORITY WATERSHEDS HUC6: • State: •• Both: •••	COUNTY NAME (STREAM MOUTH & LAKE LOCATION)	HUC6	HUC12 CODE (STREAM MOUTH & LAKE LOCATION)	UNIQUE & RARE RESOURCES (COUNT)	Attaining WQS (COUNT)	IBIs (COUNT)	HQW CRITERIA (COUNT)
Bloody Run		1390600		Wood	Wisconsin	070700030403	2	1	1	3
Hemlock Creek		1366300		Wood	Wisconsin	070700031005	1		1	2
Owl Creek		1370300		Wood	Wisconsin	070700031106		1	1	2
Rocky Creek	Run	1370800		Wood	Wisconsin	070700031104	2	1	4	3
Sevenmile Creek		1387000		Wood	Wisconsin	070700030704	2	2	3	3
Tenmile Creek	Ditch # 10	1382700		Wood	Wisconsin	070700030704	3	4	3	3
Unnamed		1372400		Wood	Wisconsin	070700031105		1	1	2

2021 High-Quality Waters: Healthy Wetlands

Wood County - 9 Healthy Wetlands identified in 2021
Data sorted by alphabetical county and increasing Healthy Wetland ID

WETLAND ID	SITE NAME	SITE ID	PRIORITY WATERSHEDS HUC6: • State: •• Both: •••	COUNTY NAME	HUC6	HUC12 CODE	DISTURBANCE RANK	PLANT COMMUNITY CONDITION	LAT	LONG
Healthy_231	Hiles Wetlands SNA	NC147	•••	Wood	Miss-Black-Root	070400070605	1	1	44.381103	-90.268278
Healthy_233	Hiles Wetlands	NC148	•••	Wood	Miss-Black-Root	070400070605	1	1	44.386212	-90.257311
Healthy_234	Hiles Wetlands SNA	NC146	•••	Wood	Miss-Black-Root	070400070605	1	1	44.40183	-90.285532
Healthy_264	Mead Conifer Bog SNA	NC157		Wood	Wisconsin	070700021705	1	1	44.667057	-89.890776
Healthy_272	Mead Conifer Bog SNA	NC156		Wood	Wisconsin	070700021705	1	1	44.6771	-89.8836
Healthy_274	Mead WA	NC026		Wood	Wisconsin	070700021705	2	2	44.6827	-89.87761
Healthy_275	Mead WA	NC020		Wood	Wisconsin	070700021707	1	1	44.682701	-89.850394
Healthy_276	Mead WA	NC024		Wood	Wisconsin	070700021707	1	1	44.68405	-89.85229
Healthy_277	Mead Conifer Bog SNA	NC155		Wood	Wisconsin	070700021705	2	1	44.684451	-89.879997

2021 High-Quality Waters: Rare & Unique Wetlands

Wood County - 5 Rare & Unique Wetlands identified in 2021
Data sorted by alphabetical county and increasing Rare & Unique Wetland ID

WETLAND ID	WETLAND TYPE	SITE ID	PRIORITY WATERSHEDS HUC6: • State: •• Both: •••	COUNTY NAME	HUC6	HUC12 CODE	SRANK	GRANK	LAT	LONG
Rare_222	Central Poor Fen	CPHER061WI	•	Wood	Wisconsin	070700031301	S3	G3G4	44.316188	-90.159898
Rare_224	Central Poor Fen	CPHER061WI	•	Wood	Miss-Black-Root	070400070605	S3	G3G4	44.326648	-90.274007
Rare_234	Central Poor Fen	CPHER061WI	•	Wood	Miss-Black-Root	070400070605	S3	G3G4	44.380064	-90.273074
Rare_235	Central Poor Fen	CPHER061WI		Wood	Wisconsin	070700031106	S3	G3G4	44.389454	-90.087796
Rare_236	Central Poor Fen	CPHER061WI	•	Wood	Miss-Black-Root	070400070604	S3	G3G4	44.396696	-90.287262

Groundwater

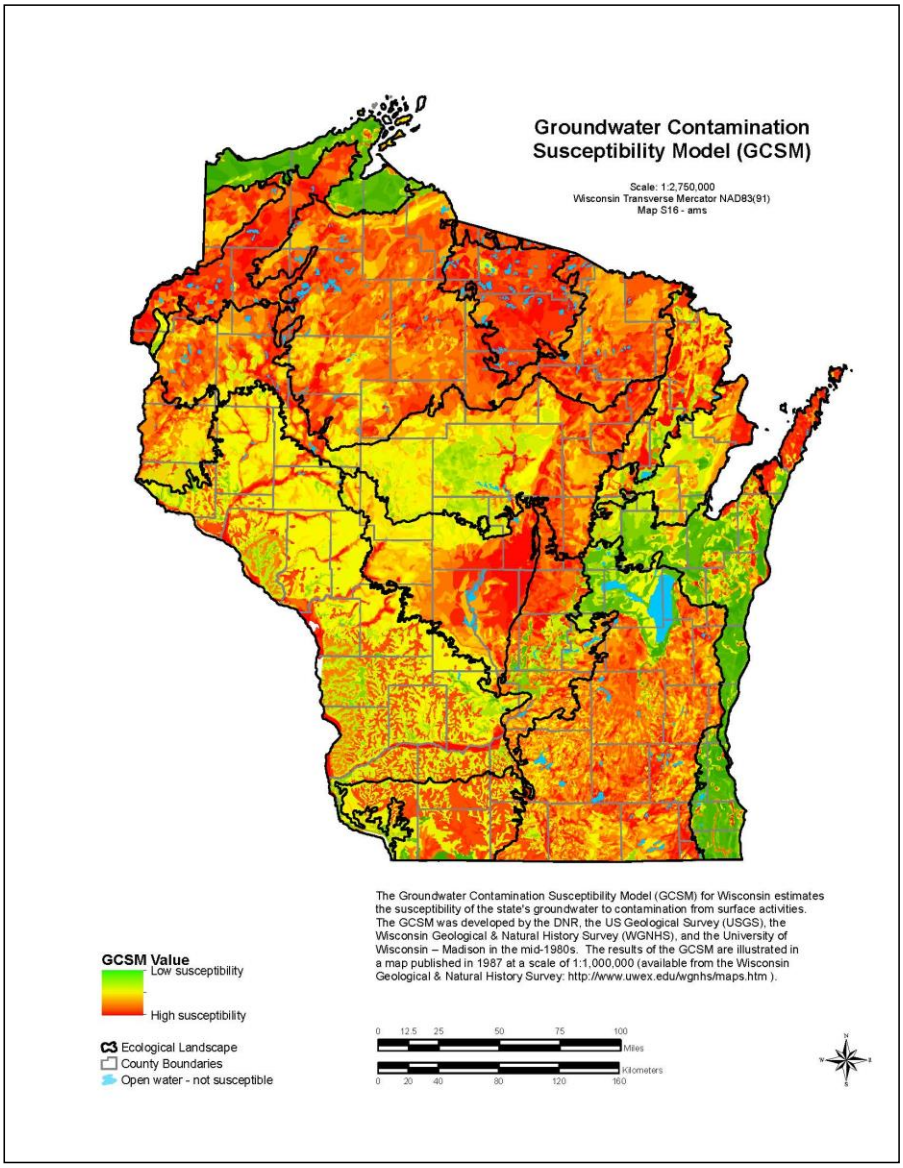
Groundwater is the source of all drinking water in Wood County and supplies many agricultural and industrial processes as well. Groundwater is a limited resource, and both its quality and quantity are important factors. These factors are primarily influenced by local geology and local land use. Groundwater in Wood County is generally abundant and of good quality.

Groundwater contamination is most likely to occur where fractured bedrock is near the ground surface, or where only a thin layer of soil separates the ground surface from the water table. According to WDNR map, Susceptibility to Groundwater Contamination, the northern two-thirds of the county ranked low to medium for susceptibility and the southern one-third of the county generally ranked medium to high for susceptibility to groundwater contamination (see map 2-9). Potential sources of groundwater contamination include:

- Chemical storage
- Land spreading of sewage treatment plant sludge
- Road salt usage and storage
- Animal feedlots
- Use and spillage of fertilizers and pesticides

- Accidental spills
- Septic tanks and drain fields
- Underground storage tanks
- Underground pipelines and sewers
- Landfills
- Mines, pits and quarries

Map (2-9)



Animal Waste Management

Because agriculture is so prevalent in Wood County, one of the most significant potential groundwater contamination sources is animal waste. Both storage and spreading of animal waste can contaminate groundwater if not done properly.

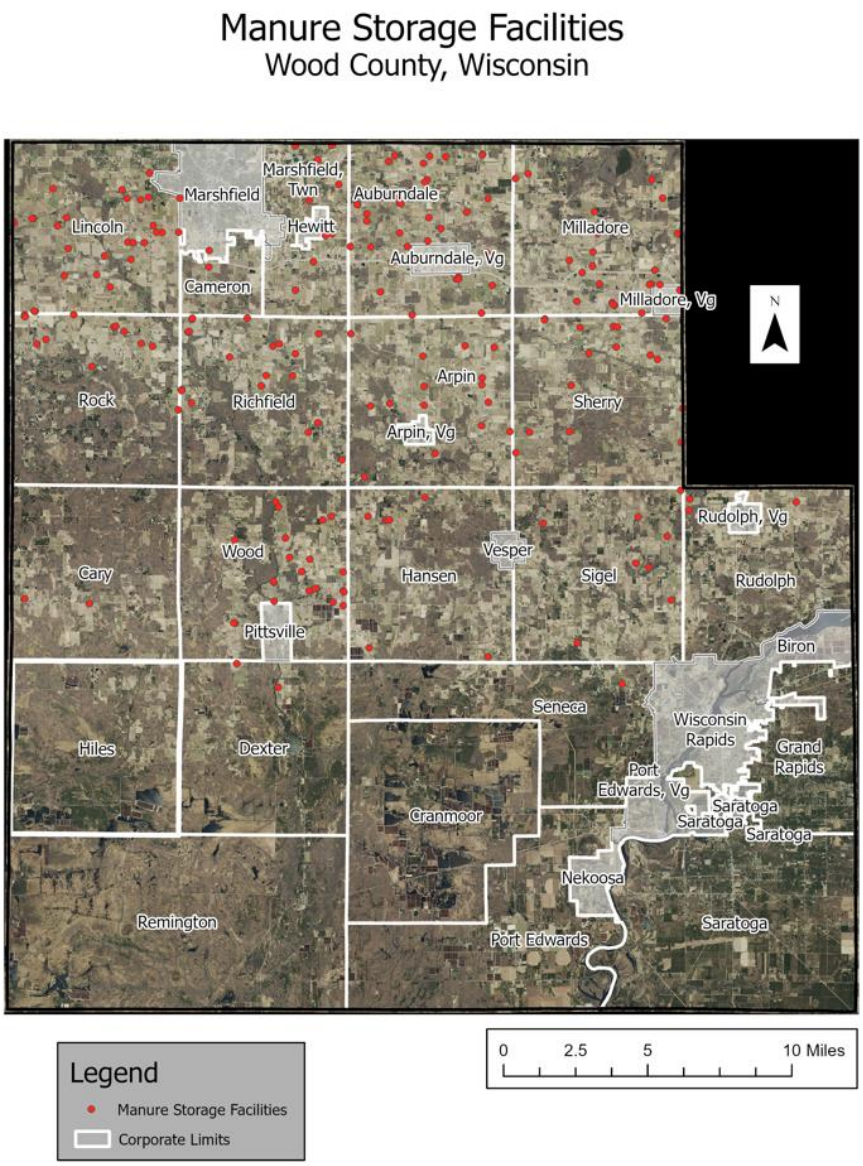
Animal waste storage facilities currently in use range from manure pits dug 50 years ago to newly engineered and installed storage structures. Currently there are 221 animal waste storage facilities in Wood County (see map 2-10). According to Land Conservation Department records, 84 of these structures were designed and installed to meet technical standards and specifications that were in effect at the time they were built. It is estimated that there are 137 manure storage facilities that do not meet any type of technical standards for design and installation. Wood County regulates the location, design, and installation of animal waste through its Animal Waste and Manure Management Ordinance. This ordinance ensures that all new, substantially altered, and abandoned manure storage facilities are completed in compliance with approved standards and specifications. The ordinance also requires that permitted storage facilities submit and follow an annual nutrient management plan.

The State of Wisconsin regulates livestock operations with 1,000 animal units or more and those livestock operations with less than 1,000 animal units that have discharges that significantly affect water quality.

The WDNR has also created Agriculture Performance Standards and Prohibitions through Administrative Rule NR 151, State Statutes. The performance standards and prohibitions were created to control polluted runoff from farms, as well as other sources, to help protect Wisconsin's lakes, streams, and groundwater. The agriculture performance standards apply to all farm operations in Wisconsin.

Map (2-10) updated

MAP OF WOOD COUNTY ANIMAL WASTE FACILITIES



Agricultural and Natural Resource Trends and Outlook

The following are anticipated farmland trends for the next ten years in Wood County.

- Increased pressure to convert farmland to other uses.
- The size of the average farm will continue to show moderate increases.
- The number of dairy farms will continue to decline.
- Dairy herd sizes will continue to increase.
- Expect an increase in the number of large dairies that are required to obtain WPDES permits.
- Decreased interest in farmland preservation programs.
- Increased interest in cash cropping.
- Dairy herd production will continue to increase.

The following trends are anticipated with respect to forest resources within the county.

- Demand for forest products is predicted to increase, while forestlands managed for timber harvest are expected to decrease.
- Property tax burden will increase for private forest owners not enrolled in a management program (MFL).
- Interest in voluntary management programs that supply a property tax break including MFL will increase.
- Forestland sales at rising prices for recreational purposes will continue.
- Continued interest in "living in the woods" will lead to additional forest fragmentation.
- The variety of recreational uses requested in the county forest will increase.
- The number of recreation enthusiasts attempting to use the county forest will increase.

The following are other anticipated trends with regard to agricultural, natural, or cultural resources within the county.

- Interest in using water features for recreational purposes will continue.
- The county's woodlands and highland areas will be desired as residential building sites.
- Demand for sand/frac sand and gravel resources will continue to increase.
- Livestock grazing along waterways will continue.
- Challenges to groundwater resources will grow including increasing quantity of withdrawal and increasing potential contamination sources.

Land Use

As populations continue to grow, more emphasis will be needed on protecting the natural resources. Land use in Wood County is predominately agriculture and woodland. Agricultural land occupies 46 percent of the total area of the county or 240,000 acres. Approximately 77 percent of the farmland is in cropland with corn, oats, hay, and soybeans being the main crops. Cranberries are the next major agricultural crop with 65 marshes in operation; these cranberry marshes total 5,178 acres in some stage of production according to the 2022 Census of Agriculture, a decrease from 86 cranberry marshes and 6,199 acres in 2017.

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Woodlands also occupy a major portion of the land area in Wood County with aspen, maple, oak, white birch, white pine, and red pine being the dominant species. Much of the forests are used by the paper mills for huge amounts of pulpwood, which is vital for paper production. There are also a significant number of tree farms specializing in Christmas trees located in the southern part of the county. Of the 516,544 acres in the county, 215,400 or 42 percent are classified as woodland. The County forest contains 38,845 acres of woodland.

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The Wisconsin Department of Natural Resources provides forest management assistance to woodland owners in Wood County. The WDNR forester, located in Wisconsin Rapids, provides help in tree planting, timber sale establishment, non-commercial thinning and pruning, and general land management planning. The WDNR also administers the forest Stewardship Program, the Wisconsin Forest Landowner Grant Program and provides technical assistance to the Farm Service Agency and the Natural Resources Conservation Service on other forestry cost-sharing program.

Sediment Delivery

The Wood County Land Conservation Department conducts an annual countywide transect survey of cropland to gather information on conservation tillage and soil loss rates. The survey provides a database of reliable information that can be used to monitor trends. These trends can be used to direct program activities. The data from this survey estimates that 92 percent of cropland fields in Wood County have soil loss rates below tolerable soil loss levels. Although soil erosion is not a prominent water quality problem in Wood County, it does provide a means of transporting nutrient rich soil particles and animal waste to lakes and streams. It is important to prevent the migration of nutrients to surface waters by installing best management practices that reduce erosion rates.

Air Quality

Commented [BAP14]: Lisa Trumble noted air quality isn't a requirement for the plan & could be pulled out, unless there's a reason to include d/t program or wind erosion. But if not relevant, pull it out.

In order to evaluate the quality of the air and to protect the public health, a series of National Ambient Air Quality Standards has been developed by the U.S. Environmental Protection Agency as established in Section 109 of the Clean Air Act. According to the Wisconsin Air Quality Report, as prepared by the Wisconsin Department of Natural Resources, the air pollutants affecting Wisconsin include sulfur dioxide, suspended particulate matter, carbon monoxide, ozone, oxides of nitrogen, lead, sulfates, and nitrates. Although wind erosion is not a prominent air quality problem in Wood County, it does provide a means at certain times of the year of displacing topsoil particles into the air causing poor visibility and other air quality issues. It is important that the Wood County Land Conservation Department

continues to work with the Central Wisconsin Windshed Partners (CWWP) to assist potato and vegetable growers in the central sands region of Wood County with wind erosion control. The (CWWP) is a cooperative venture of the Wisconsin Potato and Vegetable Growers Association; the Vegetable Processing Industry; the Land Conservation Committees of Adams, Juneau, Portage, Waushara, and Wood Counties; the Golden Sands Resource Conservation and Development Area; the Natural Resources Conservation Service; the University of Wisconsin; and the University of Wisconsin Cooperative Extension Service. The (CWWP) assists growers with wind erosion control by offering a full service windbreak establishment and maintenance program, conducting on-farm conservation tillage demonstrations, and providing education and information to growers.

CHAPTER 3: Land and Water Resource Conditions

Commented [BAP15]: KENDRA NOTES: Update exceptional and outstanding resource waters and impaired waters.

Commented [BAP16]: Lisa Trumble suggested including reference link to DNR watersheds d/t fact they're updated every 2 years; if we're focusing on impaired waters can leave more info in plan on it – that's our call – but if going to leave them in, make sure current and that narrative is accurate – if keeping them in, she suggests still including DNR link to watersheds.

Basins/Geography

Wood County consists of two major drainage basins. They are the Black-Buffalo-Trempealeau River Basin and the Central Wisconsin River Basin. Wood County has traditionally managed its natural resources by drainage basins and watersheds. This approach has been successful in developing working relationships with adjoining counties and their conservation staff. It has also brought a coordinated effort in resource management with state agencies such as the Wisconsin Department of Natural Resources and Department of Agriculture, Trade and Consumer Protection. These agencies have used the basin approach of natural resource management for many years. The following is a list of the Wood County River Basins and their watersheds:

Black-Buffalo-Trempealeau Basin
BR07 – East Fork Black River Watershed

Central Wisconsin River Basin
UW02 – Lower Yellow River Watershed
UW03 – Cranberry Creek Watershed
UW04 – Hemlock Creek Watershed
UW05 – Upper Yellow River Watershed
UW08 – Wisconsin Rapids Watershed
UW09 – Seven-Mile/Ten Mile Creek Watershed
UW10 – Four-Mile/ Five Mile Creek Watershed
UW11 – Mill Creek Watershed
UW14 – Little Eau Pleine River Watershed

Exceptional and Outstanding Resource Waters

Wisconsin has classified many of the state's highest quality waters as Outstanding Resource Waters or Exceptional Resource Waters. Currently, Wood County has five resources that are listed as Exceptional Resource Waters. They are portions of Bloody Run Creek, Five Mile Creek, Lynn Creek, Rocky Creek, and Seven Mile Creek. There are no resources in Wood County that are listed as Outstanding Resource Waters.

Impaired Waters

The listing of waters under the Clean Water Act (s.303(d) are waters, which are not meeting water quality standards. There are six listed impaired water bodies in Wood County. They include Lake Dexter, Mill Creek, the Wisconsin River, Hemlock Creek, Yellow River, and the South Branch O'Neil Creek.

East Fork Black River Watershed

The East Fork Black River is a 90 square mile watershed and has 137 miles of streams. This watershed is located in the western portion of Wood County and is primarily forested with some agriculture. The DNR has ranked the groundwater contamination potential in the East Fork Black River as low to medium.

Lower Yellow River Watershed

The Lower Yellow River is a 243 square mile watershed and has 245 miles of streams. It is located in Juneau, Wood, and Jackson Counties. This watershed was ranked using the Department of Natural Resources Nonpoint Source Priority Watershed Selection Criteria. Based on surface and ground water data, the overall ranking is low. The majority of the watershed streams are ditched. Very little information about current use classification is available. A portion of the watershed lies within the Necedah National Wildlife Refuge. The refuge was established as a breeding ground for migratory birds and other wildlife. Historically the land in and around the refuge was once a vast open peat bog with scattered islands of savanna and woodland. Once settlers arrived, the land use surrounding the refuge drastically changed. Fires from logging slash burned uncontrollably throughout the area. By the 1930's the peat was mostly gone and many farmers were looking for land with richer soils and longer growing seasons. Although agriculture proved economically unsuccessful, more than 94 miles of ditches and intermittent streams were left behind. Today they are used for water control. The groundwater contamination potential ranking for the Lower Yellow River Watershed is medium to high.

Cranberry Creek Watershed

The Cranberry Creek is a 70 square-mile watershed and has 101 miles of streams. It is located in Juneau and Wood Counties, but most of the watershed is located in the south central part of Wood County. This watershed is made up of very diverse habitats ranging from a bombing range to cranberry marshes. This watershed was ranked using the Department of Natural Resources Nonpoint Source Priority Watershed Selection Criteria. Based on surface and ground water data, the overall ranking is low. The DNR also completed baseline stream monitoring in 2004 and used this data to re-rank the surface water in this watershed. Based on data collected this watershed still received a low surface water ranking. As the name implies, Cranberry Creek Watershed is mainly cranberry marshes. There are 17 to 20 cranberry growing operations with over 100 cranberry bogs. The DNR lacks information about water quality impacts as a result of surface water discharges from these marshes. There is a concern that nutrients from fertilizers and pesticides/herbicides discharged from these marshes could be degrading water quality and harming sensitive species of aquatic life. Stream flow in many of the ditches is controlled by structures for cranberry production. Cranberry Creek appears turbid during base flow because of high iron content in the groundwater. Cranberry Creek supports a diverse warm water fishery. Water chemistry sampling in 2005 found total phosphorus concentrations in Cranberry Creek lower than other streams monitored in the basin that year. The groundwater contamination potential ranking for the Cranberry Creek Watershed is medium to high.

Hemlock Creek Watershed

The Hemlock Creek is a 160 square mile watershed and has 82 miles of streams. It is located in the central part of Wood County running from just north of Arpin in a southerly direction to the county line. This watershed was ranked using the Department of Natural Resources Nonpoint Source Priority Watershed Selection Criteria. Based on surface and ground water data, the overall ranking is high. Cranberry marshes exist within the Hemlock Creek Watershed. The DNR lacks information in regards to water quality impacts that are a result of surface water discharges from the cranberry bogs. There is a concern that contaminants from fertilizers and pesticides are being discharged from various nonpoint sources, which may be degrading water quality and harming sensitive species of aquatic life. Hemlock Creek currently receives point source discharges from the villages of Arpin and Vesper. Additional monitoring is recommended to determine effects of agriculture to this watershed. Soil erosion in the towns of Arpin and Hansen located in the upper portion of the watershed causes impacts to the overall water quality of the watershed. The groundwater contamination potential ranking for the Hemlock Creek Watershed is medium to high.

Upper Yellow River Watershed

The Upper Yellow River is a 224 square mile watershed and has 171 miles of streams. It is located in the counties of Wood, Clark, and Marathon. That portion of the watershed in Wood County is located from northwest of Marshfield and running south to the Dexter Lake dam. This watershed was ranked using the Department of Natural Resources Nonpoint Source Priority Watershed Selection Criteria. Based on surface and groundwater data, the overall ranking is high. The Upper Yellow River Watershed was funded as a Priority Watershed Project by the WDNR in 1993. It was completed in 2005. Animal waste runoff from barnyards or pasturelands occurs on the main tributaries of the Yellow River. Surface water erosion is a problem in the watershed. Biotic index values for those streams sampled indicated fair to poor water quality. The groundwater contamination potential ranking for the Upper Yellow River Watershed is low to medium.

Wisconsin Rapids Watershed

The Wisconsin Rapids Watershed is 116 square miles and has 55 miles of streams. It is located in the counties of Juneau, Wood and Portage. This area is heavily populated and incorporates the towns of Nekoosa, Port Edwards, Rudolph and part of Wisconsin Rapids. This watershed is highly developed with industry and supports several large paper mills within a relatively small section of the Wisconsin River. The Wisconsin Rapids Watershed has an overall Nonpoint Source ranking of low based upon available stream, lake, and groundwater data. The watershed was ranked using the Department of Natural Resources Nonpoint Source Priority Watershed Selection Criteria. The watershed ranked low for NPS pollution impacts on surface water quality. The DNR completed baseline stream monitoring in 2004 and used this data to re-rank surface water in the watershed from low to medium. The lower reaches of Moccasin Creek and the mid-reaches of Lynn Creek are classified trout waters and should be protected from thermal loading that results from urban development. The groundwater portion of the watershed ranked high for NPS pollution control because of documented groundwater quality impacts. The groundwater contamination potential ranking for the Wisconsin Rapids Watershed is mostly high.

Seven-Mile/Ten Mile Creek Watershed

The Seven-Mile/Ten-Mile creek is a 106 square mile watershed and has 73 miles of streams. It is located in the counties of Adams, Portage, Wood, and Waushara. In Wood County it is located in the southeastern corner. This watershed is a maze of ditches and laterals that were created to drain lowland areas for agricultural activities. There are large sections of land that have been purchased by the state that are being maintained for grassland ecosystems. This watershed was ranked using the Department of Natural Resources Nonpoint Source Priority Watershed Selection Criteria. Based on surface and groundwater data, the overall ranking is high. Maintenance dredging continues on the established ditches in order to remove sediment and vegetation from the channel. A recent decision by the DATCP requires maintenance dredging to go no deeper than the approved profile. The WDNR supports this because over-dredging removes critical in-stream habitat for trout and other aquatic organisms, creates deep, low velocity pools, increases sedimentation and reduces potential spawning areas. The groundwater contamination potential ranking for the Seven-Mile/Ten Mile Creek Watershed is high.

Four-Mile/Five-Mile Creek Watershed

The Four-Mile/Five Mile Creek is a 211 square mile watershed and has 136 miles of streams. It is located in Portage County and in the east central part of Wood County. This watershed was ranked using the Department of Natural Resources Nonpoint Source Priority Watershed Selection Criteria. Based on available surface and groundwater data, the overall ranking is medium. Three cranberry marshes exist along the Wisconsin River northeast of Biron. It is unknown whether these marshes are contributing a significant amount of nutrients to the Wisconsin River. Water drawn from ditches reduces stream depth, decreases adult fish cover, reduces spawning areas for trout, and likely exposes fish redds, and may result in an increase of water temperatures. Discharges from cranberry marshes can adversely affect water temperatures, deposit sediment, and release nutrients to the ditches. Periodic impounding of the ditches to flood marshes prevents fish migration, increases water temperatures and de-waters downstream reaches. The groundwater contamination potential ranking for the Four-Mile/Five Mile Creek Watershed is high.

Mill Creek Watershed

The Mill Creek is a 195 square mile watershed and has 105 miles of streams. It is located in Portage County and in the northeastern part of Wood County running southeasterly from Marshfield to Portage County. The Mill Creek Watershed was ranked using the Department of Natural Resources Nonpoint Source Priority Watershed Selection Criteria. Based on available surface and groundwater data, the overall ranking is high. Mill Creek is a 47-mile tributary of the Wisconsin River. Mill Creek is listed as an impaired waterbody on EPA's 303(d) list for low dissolved oxygen. The stream is impacted by stormwater runoff from Marshfield, sedimentation, barnyard and cropland run-off, flashy stream flow, streambank erosion, and nutrient enrichment.

The groundwater contamination potential ranking for the Mill Creek Watershed is low to medium. The Wood County Land Conservation Department continues to partner with the "Friends of Mill Creek Watershed, Inc.," to educate the public about natural resources and

programs that can help improve the environment and increase the overall value of Mill Creek. The Friends of the Mill Creek Watershed, Inc., is a non-profit organization that brings together community members to improve and conserve the Mill Creek Watershed.

Little Eau Pleine River Watershed

The Little Eau Pleine River is a 264 square mile watershed and has 197 miles of streams. It is located in the counties of Clark, Portage, Marathon, and Wood. In Wood County it is located in the northeast corner. This watershed is one of many watersheds that drain into the DuBay Flowage. This watershed was ranked high using the Department of Natural Resources Nonpoint Source Priority Watershed Selection Criteria. Based on surface and groundwater data, the overall ranking is low. A shallow groundwater table allows unused herbicides, pesticides, and fertilizers to leach into the groundwater without it being filtered out in the soil profile. Water quality problems are intensified by high rates of surface runoff due to the silty soils. The groundwater contamination potential ranking for the Little Eau Pleine River watershed is low to medium.

CHAPTER 4: Environmental Issues and Concerns

Basin Water Quality Management Plans

The Wisconsin Department of Natural Resources (WDNR) prepares "State of the Basin Reports" for the 24 water management units in the State of Wisconsin. The basin plans provide a history and vision for each basin's land and water resources and lists priority goals and actions for the basins. The basin plans also make recommendations and sets performance measures for what the WDNR can do to improve the health of ecosystems in the basins. The basin plans that impact Wood County include The State of the Black-Buffalo-Trempealeau Basin (2002) and The State of the Central Wisconsin River Basin (2002).

The basin plans were used as guidelines in the development of the Wood County Land and Water Resource Management Plan. Some of the goals from the basin plans have been incorporated into this document. The following is a list of the priority goals for each of the Wood County basins as established by the WDNR.

Black-Buffalo-Trempealeau River Basin
Goals:

- Preserving our unique resources
- Protecting the public's health and promoting safety
- Improving recreational opportunities
- Managing watersheds to reduce water quality impacts
- Discovering integrated management and partnership opportunities

Central Wisconsin River Basin
Goals:

- Monitor and comprehensively study the Wisconsin River and its tributaries for water quality. The information generated would be used to make management decisions, which would ultimately solve many water quality issues.
- Department staff should oppose construction of dams and encourage removal of existing dams on basin streams.
- Continue to monitor groundwater and surface water consumptive uses and their impacts on surface aquatic life and groundwater level sustainability. Where possible, regulate the withdrawals of both surface and groundwater to protect water dependent natural resources. Where regulations are not adequate, work with local communities to reduce impacts. Encourage conservation measures to minimize these impacts.
- Evaluate impacts to water quality from nonmetallic mining through permit compliance monitoring in Central Wisconsin.
- Watershed staff should continue monitoring surface waters to support the 303(b) report and identify impaired waterbodies for the 303(d) list.
- Continue trout habitat improvements and maintenance on state owned and easement properties.
- Continue to protect sensitive or critical shoreland habitats through easements of acquisition.

Commented [BAP17]: NOTES FROM KENDRA:

Would this be a good spot to include the TMDL and 9-key element plans?

Commented [BAP18]: Per Lisa Trumble, do include TMDL & 9-key info here, rely on info from Andrew to include

Also include LMPN and invasive species in this section

She also noted producer led groups are a focus by Andrew but she feels that info should/could be in the partner section of plan.

- Continue to monitor and address contaminants of concern basin-wide in surface water, sediment groundwater, fish, and other water dependent resources.
- The Drinking and Groundwater staff along with Watershed staff and our partners should continue to collect information, water samples, etc. to document the nonpoint contamination of Central Sands and other aquifers in the basin. This information should be used to develop educational and regulatory strategies to address the source of the contamination.
- Watershed staff should continue efforts to reduce agricultural NPS inputs into waters of the state.
- Basin staff should continue to work with stakeholders to identify and designate sensitive habitat areas.
- Encourage municipal water systems to adopt comprehensive Well Head Protection Plans.
- Encourage Best Management Practices in all agricultural areas designated as vulnerable to groundwater contamination.
- Encourage NRCS to extend their funding program that offers financial assistance to farmers for abandonment of unused wells on agricultural properties.
- Encourage municipal water systems to reduce water losses in their distribution systems and expand water conservation measures by their customers.
- Basin staff shall continue to monitor aquatic and terrestrial exotics, document the distribution, and work with partners to prioritize control efforts to minimize the spread of exotic species on state land and waters within Central Wisconsin River Basin.
- Basin staff shall continue to monitor aquatic and terrestrial communities, and document the distribution and status of endangered, threatened, special concern species and natural communities within the Central Wisconsin River Basin.
- Basin staff should continue to identify and pursue the abandonment of non-complying water supply wells, that serve as conduits for contamination of groundwater.
- Continue to work with local government departments such as health departments and zoning departments; private sector business; and professional associations e.g. Well Drillers, WI Water Well Assoc. (WWWA), WI Rural Water Assoc. (WRWA), Wisconsin Wastewater Operators Assoc. (WWOA), Wisconsin Association of Zoning Administrators, etc., on educational programs and materials addressed to the general public/farmers concerning the protection of all waters of our basin.

CLIMATE RESILIENCY

Commented [BAP19]: NEW SECTION – inserted info from Lisa Trumble/DATCP with Langlade County verbiage

Climate resiliency means a comprehensive effort to anticipate, prepare for, quickly respond to, and recover from the adverse impacts of climate change. It involves proactively identifying potential climate risks and vulnerabilities, integrating adaptive strategies into community planning, and fostering the resilience of critical infrastructure. A resilient community engages in systematic risk assessment, ensuring the involvement of diverse stakeholders in decision-making processes to address social equity and inclusivity.

Resilient communities prioritize the development of robust emergency preparedness plans, incorporating continuous monitoring of climate conditions and adaptation measures. This involves the construction of resilient infrastructure (including health

systems capable of responding to extreme weather events) designed to withstand extreme weather events and the promotion of economic activities less susceptible to climate impacts. Natural resource management focuses on the conservation and restoration of ecosystems, enhancing their capacity to provide essential services.
Pertaining to County Forest lands, the Langlade County Forestry, Parks and Recreation Department has incorporated a chapter titled "Forest Management for Forest Resilience including Projected Climate Change" into the 15-year

Commented [BAP20]: Revise this? Are we adding info from Parks & Forestry into our plan?

Moreover, climate resiliency emphasizes ongoing learning and flexibility, adjusting strategies based on evolving climate conditions and community needs. Policies supporting climate resilience at local, regional, and national levels are crucial, integrating climate considerations into land-use planning, zoning, and building codes. Through community engagement and education, residents are empowered with the knowledge and skills necessary to adapt to changing conditions. Ultimately, climate resiliency is a holistic and integrated approach that addresses the interconnected social, economic, and environmental aspects of a community, fostering adaptability and sustainability in the face of a volatile and variable climate.

Potential Groundwater Quantity Concerns:
Groundwater is currently in abundant supply in Langlade County, but careful consideration should be given to planned development and climate resiliency planning efforts to ensure the supply is maintained.

MDV

Commented [BAP21]: NEW SECTION – can move wherever needed BUT HAVE BARB MOVE IT

WI River TMDL

Commented [BAP22]: NEW SECTION – can move wherever needed BUT HAVE BARB MOVE IT

HUC 12 Watersheds Table

Commented [BAP23]: NEW SECTION – can move wherever needed BUT HAVE BARB MOVE IT

9-Key Element Plan

Commented [BAP24]: NEW SECTION – can move wherever needed BUT HAVE BARB MOVE IT

i.e. have Shane write up "in year 5 of plan we achieves xxxx milestones, etc. and continue to do over remaining years of 9-element key plan; also include something i.e. "as get closer to expiration date, work with DNR to expand plan/renew or something similar

Mill Creek

Commented [BAP25]: NEW SECTION – can move wherever needed BUT HAVE BARB MOVE IT

INVASIVE SPECIES

Commented [BAP26]: NEW SECTION – Kendra will break into aquatic and terrestrial

Wisconsin's invasive species rule, Wis. Admin. Code NR 40 classifies regulated invasive species as restricted or prohibited species.

Restricted species: species that are widely established in the state. It is illegal to transfer, transport, and introduce restricted species without a permit.
Prohibited species: species that are not yet in the state or in a few places. It is illegal to transfer, transport, introduce, and possess a prohibited species without a permit.

Aquatic Invasive Species

There are twelve known and verified aquatic invasive species (AIS) located within Wood County. One of the AIS is a prohibited species (non-native phragmites). Active management occurs on each known population. Nepco Lake and Petenwell Lake are listed as two of the "Top 300 AIS Prevention Priority Waterbodies," which is focused on shielding or containing the waterbodies from AIS. The Wood County Land & Water Conservation Department supports the goals within the Wisconsin Aquatic Invasive Species Management Plan to prevent the introduction of new AIS into Wisconsin, contain the spread of AIS in Wisconsin, and control existing populations of AIS to minimize harmful impacts by participating in the Lake Monitoring & Protection Network as well as pursuing other Surface Water Grants.

Terrestrial Invasive Species

There are fourteen known and verified terrestrial invasive species (TIS) located within Wood County. One of the TIS is a prohibited species (giant hogweed). Active management and monitoring occurs at the known population and surrounding areas. Wild parsnip is a restricted species that poses a hazard to human health (causes phytophotodermatitis when sap contacts skin in the presence of sunlight). Annual mapping and control measures are put in place in mid-summer and fall. Coordination with the Wood County Highway Department, Portage County Land & Water Conservation Department, and the Wood County Weed Commissioner is key in response and management efforts.

Shoreline Stabilization

With the combination of soil structure, changing water levels, loss of vegetation, larger boat motor sizes, wake boats, natural processes, and accelerated erosion rates due to human interactions, shoreline erosion is causing decreased water clarity and quality, in turn increasing occurrences of harmful algal blooms and degrading fish and wildlife habitat. An increase in shoreline stabilization practices will help reduce total suspended solids and nutrient runoff loading within Wood County waterways, contributing to reaching the goals of the Mill Creek 9-Key Element Plan and Wisconsin River TMDL. Inquiries regarding shoreline stabilization projects and cost-shared practices will evaluate the use of vegetative buffers, natural fiber products, geotextile materials, wave-reducing timbers, and riprap techniques.

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Other Issues and Concerns

In addition to the prioritized resource concerns, several other resource issues are significant to the quality of Wood County's natural resources. The following are additional issues and concerns facing natural resources management in Wood County:

- There is a growing concern over invasive plant species.
- The management of increasing numbers of bear, wolf, and deer continues to be a concern.
- The loss of prime farmland to non-agricultural uses.
- The loss of farms due to economics.

CHAPTER 5: Goals and Objectives

Commented [BAP27]: Per Lisa Trumble, tweak as needed, can keep format or change format – tweak as needed as we develop goals, be sure to include goal re: surface water grants

During the Wood County Land and Water Resource Management Plan revision process, natural resources management professionals as well as county citizens and local officials have agreed that nutrient loading to streams by both sediment and animal waste is the number one resource concern. The following is a list of goals and objectives as established by the Advisory Group and approved by the Wood County Conservation, Education and Economic Committee:

The goals, objectives, and action items will be reviewed by the Advisory Group once every year to evaluate implementation progress and to recommend needed changes to update the Work Plan as a result of annual work planning and a five year review before the Land and Water Conservation Board.

Goal 1: Reduce Sediment Delivery to Surface Waters.

Objectives:

1. Reduce erosion and sediment delivery from cropland fields.
2. Reduce sediment from non-cropland acres.
3. Administer Nonmetallic Mining Reclamation Ordinance.
4. Reduce sediment from construction sites.

Goal 2: Reduce Animal Waste and Nutrient Delivery to Surface Waters and Groundwater.

Objectives:

1. Increase the number of cropland acres that have a nutrient management plan.
2. Reduce runoff of winter-spread manure.
3. Administer County Animal Waste Storage Ordinance.
4. Reduce runoff from barnyards and feedlots.
5. Promote proper well abandonment.
6. Implement Chapter 102, Wisconsin Statutes Phosphorus Rule.
7. Reduce high nitrate levels in drinking water.

Goal 3: Reduce Crop Damage Caused by Wildlife.

Objectives:

1. Administer Wildlife Damage Abatement and Claims Program.

Goal 4: Protect and Develop Wetlands and Uplands for Wildlife Habitat.

Objectives:

1. Increase and protect wetlands and wildlife habitat.

Goal 5: Increase Efforts to Inventory the Water Resources of Wood County.

Objectives:

1. Increase water quality monitoring on Wood County Streams.
2. Increase water quality monitoring for groundwater resources in Wood County.

Goal 6: Minimize the Adverse Effects of Urban Sprawl and Land Fragmentation in Rural Wood County.

Objectives:

1. Maintain prime farmland and reduce housing development in rural areas.

Goal 7: Improve Air Quality in Wood County.

Objectives:

1. Reduce wind erosion from cropland fields.
2. Increase awareness of Wood County air quality.

Goal 8: Improve Woodlands in Wood County.

Objectives:

1. Educate landowners on proper forestry management.

CHAPTER 6: Agricultural Performance Standards and Prohibitions

Commented [BAP28]: Per LT, OK to leave performance standards in, or could reference via link instead – descriptions are OK but could be condensed

Effective October 1, 2002, NR 151 set forth state minimum performance standards and prohibitions for farms and urban areas. These performance standards and prohibitions were designed to achieve water quality standards by limiting nonpoint source water pollution. It is the landowner's responsibility to meet the agriculture performance standards and prohibitions. The role of the Wood County Land Conservation Department is to assist landowners in planning, designing, installing and approving management plans and practices to meet NR 151 standards. The Department of Natural Resources has developed ten components to NR 151 implementation that identify DNR's role and their expectations of counties for each implementation component. See (appendix C). The following is a list of the Agricultural Performance Standards and prohibitions.

Performance Standards

NR 151.02 Sheet, Rill and Wind Erosion

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.

NR 151.03 Tillage Setback

The purpose of this standard is to prevent tillage operations from destroying stream banks and depositing soil directly in surface waters.

1. No crop producer may conduct a tillage operation that negatively impacts stream bank integrity or deposits soil directly in surface waters.
2. No tillage operations may be conducted within 5 feet of the top of the channel of surface waters. Tillage setbacks greater than 5 feet but no more than 20 feet may be required for this standard.
3. Crop producers shall maintain the area within the tillage setback in adequate sod or self-sustaining vegetative cover that provides a minimum of 70% coverage.

NR 151.04 Phosphorus Index

1. All crop and livestock producers shall comply with this section.
2. Croplands, pastures, and winter grazing areas shall average a phosphorus index of 6 or less over the accounting period and may not exceed a phosphorus index of 12 in any individual year within the accounting period.

NR 151.05 Manure Storage Facilities

All livestock producers building new manure storage facilities, substantially altering manure storage facilities, or choosing to abandon their manure storage facilities shall comply with this section.

New or substantially altered manure storage facilities shall be designed, constructed and maintained to minimize the risk of structural failure of the facility, minimize leakage of the facility in order to comply with the groundwater standards.

Closure of a manure storage facility shall occur when an operation where the facility is located ceases operations, or manure has not been added or removed from the facility for a period of 24 months. The owner or operator many retain the facility for a longer period of time by demonstrating all of the following conditions are met:

1. The facility is designed, constructed and maintained in accordance with an accepted standard.
2. The facility is designed to store manure for a period of time longer than 24 months.
3. Retention of the facility is warranted based on anticipated future use.

Manure storage facilities in existence as of October 1, 2002, that pose an imminent threat to public health or fish and aquatic life or are causing a violation of groundwater standards shall be upgraded, replaced or abandoned in accordance with this section.

NR 151.055 Process Wastewater Handling

1. All livestock producers shall comply with this section
2. There may be no significant discharge of process wastewater to waters of the state.

NR 151.06 Clean Water Diversions

All livestock producers within a water quality management area shall comply with this section. A water quality management area, as defined by NR 151 is the area within 1,000 feet from the ordinary high water mark of navigable waters that consist of a lake, pond or flowage, except that for a navigable water that is a glacial pothole lake, the term means the area within 1,000 feet from the high water mark of the lake; the area within 300 feet from the ordinary high water mark of navigable waters that consist of a river or stream; and a site that is susceptible to groundwater contamination, or that has the potential to be a direct conduit for contamination to reach groundwater.

Runoff shall be diverted away from contacting feedlot, manure storage areas and barnyard areas within water quality management areas except that a diversion to protect private well is required only when the feedlot, manure storage area or barnyard area is located upslope from the private well.

NR 151.07 Nutrient Management

All livestock and crop producers that apply manure or other nutrients directly or through contract to agricultural fields shall comply with this section.

Manure, commercial fertilizer and other nutrients shall be applied in conformance with a nutrient management plan. The nutrient management plan shall be designed to limit or reduce the discharge of nutrients to waters of the state for the purpose of complying with state water quality standards and groundwater standards.

Effective for all farms on January 1, 2005 if the farm is located in

1. Watersheds containing outstanding or exceptional waters.
2. Watersheds containing impaired waters.
3. Source water protection areas.

Effective for all other farms on January 1, 2008.

NR 151.08 Manure Management Prohibitions

All livestock producers shall comply with this section.

1. No overflow of manure storage facilities.
2. No unconfined manure pile in a Water Quality Management Area.
3. No direct runoff from a feedlot or stored manure into the waters of the state.
4. No unlimited access by livestock to waters of the state.

Local Implementation Strategy

Commented [BAP29]: Per LT – KEEP this, but make sure still current and freshen it up – work with Cindy Koperski/DNR to do that

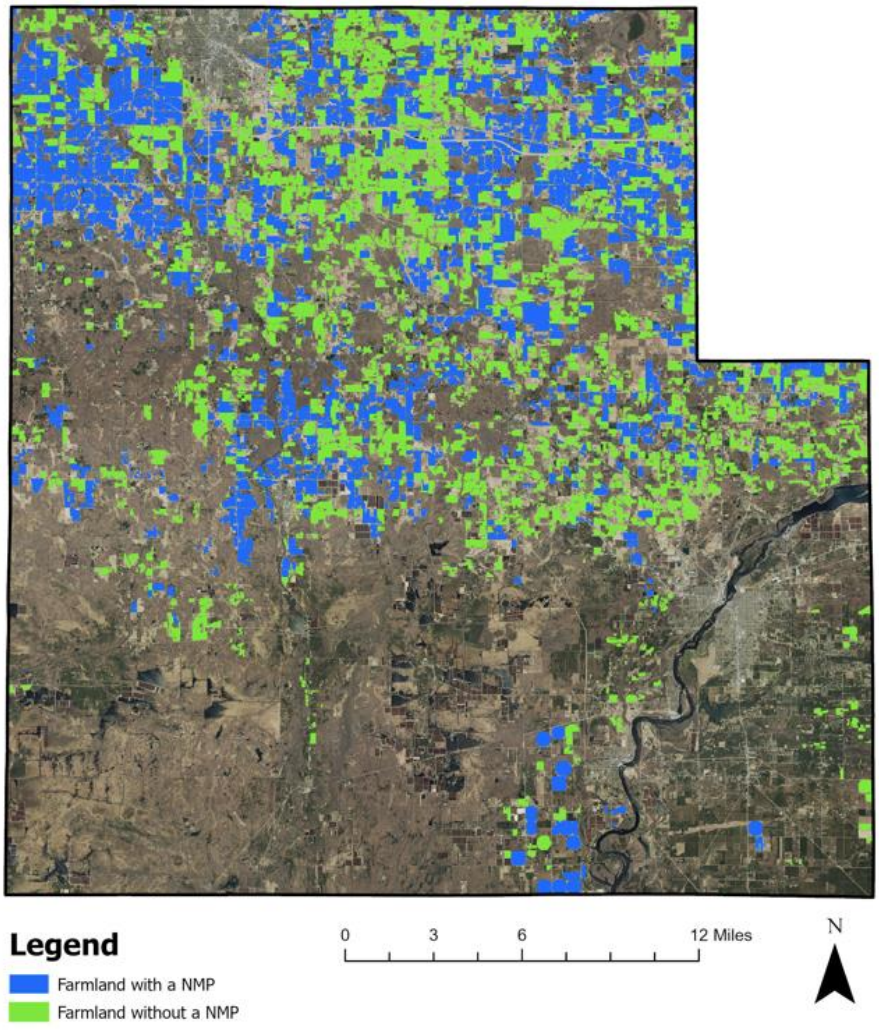
NR 151 Local Implementation Strategy

The following is a description of the procedures that the Wood County Land Conservation Department may use to assist landowners in meeting the Chapter NR 151 Agricultural Performance Standards and Prohibitions. This implementation strategy is based on Land Conservation Department staff and funding availability.

Map (# - to be assigned)

Farmland with a Nutrient Management Plan 2016-2023

Wood County, Wisconsin



Information and Education

The Wood County Land Conservation Department, along with UW-Extension Service and WDNR, will initiate an information and education campaign to inform all Wood County farmers of the requirements of Chapter NR 151. This effort has been implemented through local press releases and newsletters and will attempt to voluntarily get landowners to comply with NR 151. The Land Conservation Department staff will also make direct contact with landowners during farm visits for other program purposes and inform them of NR 151 requirements.

Priority Farm Identification

With over 1,000 farm operations in Wood County, it is essential that a prioritization process be implemented to address the requirements of Chapter NR 151. Due to limited staff, the Wood County Land Conservation Department has developed the following priority farm identification strategy over the next ten years:

First Priority - Farms where a valid complaint has been received regarding the violation of the agricultural performance standards or prohibitions.

Second Priority – Farms applying for Farmland Preservation Agreements.

Third Priority – Farms applying for an Animal Waste and Manure Management Ordinance Permit.

Fourth Priority – Farms that receive cost-share assistance under the Land and Water Resource Management program for barnyard runoff control systems.

Fifth Priority – Farms located in watersheds draining to 303(d) waters.

Commented [BAP30]: Per LT – in the new 50, Lisa tweaked language re: priority farm strategy –counties now have different priorities, took care of that by adding priority areas, could be priority area strategy/priority farm ID - so if this has changed, freshen it up, don't need to have 5 priorities, just list whatever it is for us now – don't leave any "old" stuff in plan

Compliance Determination

On-site evaluations will be the primary means of determining compliance with Chapter NR 151 requirements. On-site evaluations will be completed using the evaluation form included as Appendix C. The information in the evaluation form will be tracked using the county geographic information system. Landowners that have gone through the evaluation process will receive the following:

- A copy of the evaluation report with a landowner signature page.
- A letter with instructions on appeal procedures if the landowner contests the evaluation.
- Recommendations for measures needed to achieve compliance.
- A schedule for achieving compliance with the standards.
- The availability and source of cost-share funds for installing recommended practices.

Compliance determinations will be completed based on the following priorities:

- For any landowner who voluntarily requests a determination.
- For any new farmland preservation program participants.
- For any farm that is requesting a permit under Wood County's Animal Waste and Manure Management Ordinance.

- For any farm that receives a valid complaint regarding a violation of the agricultural performance standards and prohibitions.

Enforcement

Enforcement of actions associated with NR 151.09 and NR 151.095 will be coordinated with the WDNR. If a landowner continues to remain in noncompliance with the state performance standards and/or prohibitions, or should a landowner refuse technical and/or financial assistance from the Land Conservation Department, the LCD will forward all information corresponding to the infraction(s) to the WDNR and will notify the landowner(s) by registered mail that they are subject to an enforcement action pursuant to NR 151.09 and NR 151.095.

Appeals

Any person aggrieved by a decision of the Wood County Land Conservation Department may file a written appeal of the decision to the Wood County Land Conservation Department, Courthouse, 400 Market Street, Wisconsin Rapids, WI 54495-8095 within 30 days of the department's decision. A hearing on the appeal shall be commenced within 60 days of the date of the appeal.

Cost-share Assistance

The Wood County Land Conservation Department provides cost-share funding assistance to landowners installing best management practices through its Soil and Water Resource Management Program.

To receive financial assistance, landowners must enter into a cost-share agreement with the Land Conservation Department. Cost-share agreements are binding documents that secure funds for installing best management practices. The administration of the cost-share assistance programs is the responsibility of the Wood County Land Conservation Department. The department maintains participating landowner files in accordance with approved methods and practices for accounting and recording keeping. The department is also responsible for the monitoring of best management practices installed with cost-share assistance to ensure proper operation and maintenance during the expected life of the practice.

The Land Conservation Department has also established a cost containment policy to equitably distribute the available cost-share funds. The cost containment policy uses a combination of procedures to accomplish its goal. Bidding, average costs and flat rates as well as maximum cost-share amounts are used to contain project costs. A copy of the Wood County Cost Containment Policy can be found in Appendix D.

Best Management Practices

Commented [BAP31]: Per LT, include recent ATCP-to updated BMP's

The following is a list of Best Management Practices listed in ATCP-50 that are eligible to receive cost-share assistance under the Wood County Soil and Water Resource Management Program:

- manure storage systems
- manure storage system closure

- barnyard runoff control systems
- access roads and cattle crossings
- animal trails and walkways
- contour farming
- cover and green manure crop
- critical area stabilization
- diversions
- feed storage runoff control systems
- field windbreaks
- filter strips
- grade stabilization structures
- heavy use area protection
- livestock fencing
- livestock watering facilities
- milking center waste control systems
- nutrient management
- pesticide management
- prescribed grazing
- relocating or abandoning animal feeding operations
- residue management
- riparian buffers
- roofs
- roof runoff systems
- sediment basins
- sinkhole treatment
- streambank and shoreline protection
- stream crossing
- strip cropping
- subsurface drains
- terrace systems
- underground outlets
- waste transfer systems
- wastewater treatment strips
- water and sediment control basins
- waterway systems
- well decommissioning
- wetland development or restoration

CHAPTER 7: Coordination with Other Resource Management Plans & Programs

Commented [BAP32]: Per LT, other programs are a requirement on checklist. Add lake districts under county programs.

To meet the goals established in this plan, landowners will need to participate in existing as well as new Federal, State, and Local programs. There are numerous programs available to landowners to help them comply with the NR 151 requirements established by the WDNR. Some programs provide technical and planning services while some offer financial assistance. Some programs are regulatory and may require compliance with NR 151 requirements through indirect means. It is the intent of the Wood County Land Conservation Department to utilize all of the following programs to assist county landowners in meeting the compliance requirements of NR 151.

Federal Programs

1. Environmental Quality Incentives Program (EQIP)
   Provides cost-share assistance for the installation of locally selected best management practices that reduce erosion and animal waste concerns. Program administered by the U.S.D.A. Farm Service Agency (FSA) and the Natural Resources Conservation Service (NRCS).

2. Conservation Reserve Program (CRP)
   A FSA and NRCS administered program that provides funding to landowners for setting aside eligible lands for conservation purposes

3. Conservation Reserve Enhancement Program (CREP)
   A multi-agency coordinated program that (DATCP, FSA, NRCS, and Wood County) provides land rent payments to landowners who install buffers along streams and waterways and to landowners who establish or maintain grasslands in the grassland project area.

4. Wetland Reserve Program (WRP)
   A FSA and NRCS administered program that provides cost-share assistance to restore converted wetlands from agricultural use.]

5. Partners for Fish and Wildlife Program
   US Fish and Wildlife Service Program used in Wisconsin to assist in wetland restoration, fish and wildlife habitat improvement, and restoration of habitats of special concern.

6. Agricultural Conservation Easement Program (ACEP)
   Provides funds for the purchase of conservation easements on eligible agricultural lands and wetlands to protect and preserve land and its natural resources.

State Programs

1. Targeted Resource Management Program (TRM)
   Provides cost-share assistance to landowners who install best management practices in designated watersheds or areas. Funding is provided by WDNR.

2. Soil and Water Resource Management (SWRM)
   Provides cost-share assistance and staffing grants to County Land Conservation Departments to implement their Land and Water Resource Management Plans. Funds are provided by Wisconsin DATCP.

3. Surface Water Grants
   Funds provided by WDNR to protect and improve water quality in Wisconsin lakes, prevent and control the spread of aquatic invasive species in the waters of the state, and to protect or improve rivers and their ecosystems..

4. Managed Forest LAW (MFL)
   Provides a tax incentive to landowners who manage their woodlots in accordance with an approved timber management plan.

5. Agricultural Clean Sweep
   Provides funding to local units of government to implement a program for collecting unwanted hazardous wastes.

6. Notice of Intent/Discharge Cost-Share Grants
   Cost-Share funding provided by the DNR to governmental units working with owners and operators of livestock operations to meet pollution control requirements.

Commented [BAP33]: Lake Management Planning Grants now called Surface Water Grants and combined with #6 & #8 (see two items deleted below)

Deleted: Lake Management and Planning Grants

Deleted: <#>Aquatic Invasive Species Prevention and Control Grants¶
Funds provided by the DNR to help prevent and control the spread of aquatic invasive species in the waters of the state.¶
¶

Deleted: <#>River Protection Planning Grants¶
Funds provided by the DNR to protect or improve rivers and their ecosystems.¶

County Programs

1. Wood County Animal Waste and Manure Management Ordinance
   Administered by the Wood County Land Conservation Department to regulate the location, design, construction and operation of animal manure storage facilities.

2. Wood County Nonmetallic Mining Reclamation Ordinance
   Administered by the Wood County Land Conservation Department. The Land Conservation Department reviews and approves reclamation plans for compliance with state laws. Recommends erosion control practices to mining operators.

3. Wood County Shoreland Zoning Ordinance
   Administered by Wood County Planning and Zoning Department. Regulates the amount of development that takes place near shore and wetland areas.

4. Wood County Farmland Preservation Plan
   Managed by the Wood County Land Conservation Department. The plan allows farmers to be eligible to receive tax credits under the Wisconsin Farmland Preservation Program. To make the transition into compliance for the FPP participants as painless as possible the Land Conservation Department will work with participants to obtain compliance over the next ten years.

5. Wood County Forest – 15 Year Comprehensive Land Use Plan
   This plan provides extensive background information regarding the Wood County Forest and operating policies and procedures, which Wood County will follow in administration of the forest.

Other Active Partners

1. Wood County sportsmen's clubs and associations.
2. Golden Sands Resource Conservation and Development Area.
3. Local units of government in Wood County including cities, villages, and townships.
4. Wisconsin State Cranberry Growers Association.
5. Central Wisconsin Windshed Partners.

Commented [BAP34]: NOTE FROM KENDRA – Include lake districts in #3?

The Wood County Land Conservation Department will make efforts to coordinate program implementation with other cooperating agencies. This will be especially important when assisting landowners who wish to be in compliance with NR 151 requirements.

CHAPTER 8: Evaluation and Monitoring

Commented [BAP35]: Per LT, include tracking of all accomplishments, i.e. if checking reductions, put that info in here in this area; if there is FPP participation and tracking that, state that we're doing 25% spot checks which is a requirement to include in plan.

Sediment Delivery

Like most counties in the state, Wood County is in the process of land records modernization. The development of Geographic Information System (GIS) capabilities greatly enhances evaluation and monitoring capabilities. The GIS will be used to locate farms that have been evaluated for compliance with NR 151 Standards. The evaluation will be linked with parcel identification numbers for future monitoring purposes.

Erosion rates from Wood County crop fields will be evaluated using the transect survey method. The Land Conservation Department will continue to conduct an annual countywide survey of cropland to gather information on tillage methods and soil loss rates.

Annual accomplishment reports will be submitted to the Wisconsin DATCP and DNR. These reports will summarize the number of cropland acres that had conservation plans developed on them in the reporting year. The report will also show the number and type of best management practices that were installed through the Soil and Water Resource Management Program.

Animal Waste and Nutrient Delivery

The Wood County Land Conservation Department will use the GIS to locate and detail the number of animal waste storage facilities that were installed during the year. The GIS will also be used to locate crop acres that have manure-spreading restrictions and nutrient management plans. Also, the GIS will locate properly abandoned manure storage facilities.

An annual accomplishment report submitted to the Wisconsin DATCP and DNR will show the number of manure storage facilities that were built, the number of cropland acres with a conservation plan and the number of acres that have a nutrient management plan. The report will also indicate the number and type of best management practices that were installed through the Soil and Water Resource Management Program.

Nonmetallic Mining Reclamation Database

The Wood County Land Conservation Department will use the GIS database as a current inventory of all active reclamation permits issued by the department. This database can be used to locate and detail each of the nonmetallic mines in the county, both active and reclaimed. Yearly photo documentation, GPS obtained active acres per year, approved reclamation plan and overall site maps can be found in this database. A separate database will track the type and amount of financial assurance for each of the permitted sites.

The annual report submitted to the Wisconsin DNR will summarize the number of currently active permits, newly issued permits, total affected acres, and total acres reclaimed for the year.

Water Resources Inventory

It is the goal of the Land Conservation Department to increase what is known about Wood County's surface and groundwater resources. Increasing the inventory database of these resources will help natural resource managers make better decisions to solve water quality problems. The Land Conservation Department will encourage continued and more water quality monitoring efforts by the WDNR. Annual accomplishment reports submitted to the Wisconsin DATCP and DNR will summarize the number and location of stream and groundwater samples. The Land Conservation Department has a detailed inventory database for applied conservation practices, streamflow, and storm drains in Wood County.

CHAPTER 9: Information and Education Strategy

Commented [BAP36]: Per LT, don't need to go into detail level of listing # of contacts (that is in annual work plan) but DO need to address info/education – that needs to be in plan. If have a good program, make sure covered and put in plan, just don't need to list talked to xxx number of people.

She recently had a county who went away from info/education and they're now noticing they need to bring it back and be more in the public eye.

The successful implementation of the Land and Water Resource Management Plan will depend heavily on an aggressive information and education program. This program must be well coordinated and organized to effectively impact change in the way people use their land and other natural resources. To accomplish this task, it is important that the Land Conservation Department form strong alliances with those agencies, departments and individuals who have the knowledge and ability to educate and teach landowners.

The Land Conservation Department is neither trained nor well equipped to provide this level of effectiveness. We will rely heavily on the experience of the UW-Extension Service staff to accomplish this task.

Goals

The focus of the information and education program will be to:

- Create awareness among Wood County farmers and landowners regarding the agricultural performance standards and prohibitions.
- Create awareness among farmers and landowners regarding the services provided by the Wood County Land Conservation Department and other cooperating agencies.
- Create awareness among farmers and landowners regarding the availability of cost-share assistance programs and who to contact regarding those programs.
- Inform citizens about rural and urban sources of runoff pollution.
- Inform municipalities and contractors regarding construction site erosion control and stormwater runoff management.
- Advise farmers and landowners regarding the role and purpose of best management practices.

Evaluation

The information and education program will be evaluated annually to determine the level of effectiveness achieved. As part of the Land Conservation Department's annual accomplishment report, all information and education activities will be summarized for each reporting year. The Land Conservation Department, Natural Resources Conservation Service and UW-Extension will evaluate levels of effectiveness for these activities. Effectiveness will be measured by:

- Citizen participation at meetings
- Number of cost-share agreements
- Transect survey results
- Assistance requested
- BMP adoption and maintenance

The evaluation of information and education activities will be reviewed annually.
Adjustments in program delivery will be made accordingly based on the evaluation results.

The following pages outline the resource goals, objectives, and actions the Conservation, Education and Economic Development Committee plans to address within the next ten years. All high priority activities are highlighted in bold and shaded.

DEFINITIONS

Aquifer..... An underground layer of soil material or bedrock that contains groundwater.

ATCP 50 ..... The chapter of Wisconsin's Administrative Code that implements the Land and Water Resource Management Program as prescribed in Chapter 92 of the Wisconsin Statutes.

Basin..... An extremely large watershed area, used by DNR to identify major drainage patterns in the State. Wood County falls within two major drainage basins, the Black-Buffalo-Trempealeau River Basin and the Central Wisconsin River Basin.

Best Management Practices..... (BMPs) The most effective practice or combination of practices for reducing nonpoint source pollution to acceptable levels.

Chapter 92 ..... Portion of the Wisconsin Statutes outlining the soil and water conservation, agricultural shoreland management and animal waste management laws and policies of the State.

Conservation – CEED ..... The portion of the Wood County government that is empowered by Chapter 92 of the Wisconsin Statues to conserve and protect the County's soil, water and related natural resources.

Conservation Reserve Program ..... (CRP) A provision of the Federal Farm Bill that takes eligible cropland out of production and puts that land into grass or tree cover for 10 to 15 years.

Crop Residue ..... The plant residue left on the soil surface after the harvest of a crop and preparation of the soil for the following crop.

Department of Agriculture, Trade and Consumer Protection (DATCP) – The State agency responsible for establishing statewide soil and water conservation policies and administering the State's soil and water conservation programs. DATCP administers State cost-share funding for a variety of LWCD operations, including support for staff, materials and conservation practices.

Erosion..... The process by which rainwater and runoff detach soil particles from the soil surface and carry them downhill.

Geographic Information Systems (GIS) – A computerized system of maps and layers of data about land including soils, land cover, topography, field boundaries, roads and streams, zoning and land use, etc

Glacial Till ..... Rock fragments and soil materials transported and deposited by the ice of glaciers.

Impaired Waters 303(d) List ..... A DNR list of water bodies, required by the federal Clean Water Act, that do not meet or are not expected to meet quality water standards.

Natural Resources Conservation Service (NRCS) – The NRCS is under the direction of the United States Dept. of Agriculture (USDA) and is responsible for soil survey inventory and information, farm conservation planning, and providing technical assistance to landowners regarding best management practices.

Nonpoint Source Pollution..... The pollution that occurs when rainfall or snowmelt runs over land surface or through the soil, picks up natural and human applied pollutants, and deposits them into surface water or groundwater. Pollutants include soil particles, fertilizers, animal waste, pesticides, petroleum products, and other toxic materials.

Nutrient Management..... A conservation practice designed to minimize the contamination of surface and ground water by limiting the amount of nutrients applied to the soil to no more than what the crop rotation is expected to use. It involves frequent soil testing and annual planning of the techniques, placement, rate, and timing of fertilizer and animal waste applications. Also includes an analysis of soil erosion rates based on cropping and tillage practices.

Parent Material..... The original rock and organic materials that a soil formed from. Climate, landscape position, plants and animals act on these materials over time to form soils with unique properties.

Sedimentation ..... The transport and deposition of soil particles from soil erosion and by surface runoff. The particles may be deposited onto the land surface or into surface water or groundwater.

Storm Water..... The portion of rainfall and snowmelt that runs over the land surface and does not soak into the ground. Paved surfaces and roofs increase storm water quantities. Storm water often delivers pollutants to surface waters.

Sub-basin..... A large watershed area used by DNR as a management unit for strategic planning.

Surface Water Quality Management Area – A land area draining to and within 1,000 feet of a lake or 300 feet of a stream.

Technical Standards..... The specifications for the design, construction, implementation and maintenance of conservation practices.

Tillage ..... Farming operations which mechanically disturb the soil in preparation for planting a crop. Clean tillage, or moldboard plowing, buries all or most of the crop residue from the previous crop. Minimum tillage, reduced tillage, and conservation tillage leaves a portion of the crop residue from the previous crop on the soil surface after planting to protect the soil from erosion. No-till leaves all of the crop residue on the soil surface.

TMDL ..... Total maximum daily load for total phosphorus, established by section 303(d) of the Clean Water Act.

Tolerable Soil Loss (T) ..... The maximum rate of soil erosion, in tons per acre per year, that is allowable for a particular soil to sustain its productivity for growing plants and crops.

University of Wisconsin-Extension (UW-Ext) – The local outreach branch of the University of Wisconsin that is responsible for formal and informal educational programs throughout the state.

Watershed..... A land area that drains to a common point such as to a stream or lake, or to a group of streams and/or lakes.

Wisconsin Department of Natural Resources (WDNR) – the State agency responsible for managing State owned lands and protecting public waters of the State. The WDNR also administers programs to regulate, guide and assist land conservation programs within individual counties, as well as landowners in managing land, water, fish and wildlife.

Wisconsin Land & Water Association – Membership organization that represents the state's 72 county Land & Water Conservation Committees, Departments and their employees.

Appendix A

Commented [BAP37]: Per LT, up to us if we want to keep in plan, she noted sometimes people like to see their name in print in plans, so up to us if we want to include or not. In beginning of plan would just need to state committee was formed, held meeting on xxx date, and do not need to include notice of meeting in plan.

8/1/24 – updated with current 2024 participants

WOOD COUNTY LWRM PLAN
ADVISORY GROUP

NAME	AFFILIATION
Andrew Craig	DNR
Scott Provost	DNR
Pat Oldenburg	DNR
Lisa Trumble	DATCP
Katie Smith	DATCP
Barbara Peeters	Wood County LWCD
Shane Wucherpfennig	Wood County LWCD

WOOD COUNTY LWRM PLAN
CITIZENS ADVISORY COMMITTEE

NAME	AFFILIATION
Pat Stanislawski	Town of Dexter
Bill Clendenning	County Board, District 15
Bill Leichtnam	County Board, District 19
Randy Moody	Town of Port Edwards
Jason Grueneberg	Wood County Planning & Zoning
Ben Jeffrey	Wood County Health Department
Chad Schooley	Wood County Parks & Forestry
Fawn Gottschalk	Town of Cranmoor
Jen McNelly	Wood County UW Extension
Russ Biebl	USDA, NRCS
Andy Richardson	USDA, NRCS
Andrew Craig	Wisconsin DNR
Scott Provost	Wisconsin DNR
Cindy Koperski	Wisconsin DNR
Barbara Peeters	Wood County Land & Water Conservation
Kendra Wilhelm	Wood County Land & Water Conservation
Emily Salvinski	Wood County Land & Water Conservation
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References:

- 2022 Census of Agriculture – County Data – USDA, National Agricultural Statistics Service https://www.nass.usda.gov/Publications/AgCensus/2022/Full_Report/Volume_1,_Chapter_2_County_Level/Wisconsin/wiv1.pdf