

Element 5: Agricultural, Natural, and Cultural Resources

A compilation of objectives, policies, goals, maps and programs for the conservation, and promotion of the effective management, of natural resources such as groundwater, forests, productive agricultural areas, environmentally sensitive areas, threatened and endangered species, stream corridors, surface waters, floodplains, wetlands, wildlife habitat, metallic and nonmetallic mineral resources consistent with zoning limitations under s 295.20 (2), parks, open spaces, historical and cultural resources, community design, recreational resources and other natural resources.



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Element 5: Agricultural, Natural, and Cultural Resources

Introduction

This element of the comprehensive plan provides an inventory and assessment of the agricultural, natural, and cultural resources of Wood County. The diversity of Wood County's resource base lends itself to a mix of agriculture, business and recreation. The presence of resources in an area can many times be the determining factor in the feasibility of future development or land use changes. With knowledge of existing resources, future development, and land use changes can take place in appropriate areas of the County, without negatively impacting resources. In addition, by identifying the resources of the county, action can be taken to continue to preserve, enhance, and in some cases restore resources in the future.

Wood County Lands

Geography

Wood County is located in the center of Wisconsin, with the city of Pittsville often considered the geographical center of the State. The 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 Jackson and Clark counties. Wood County is the 32nd largest county in Wisconsin with a total land area of 792.78 square miles.

Wood County, Wisconsin



Inset Map 5-1

Topography and Geology

Wood County contains Precambrian igneous metamorphic rock, Cambrian sandstone, and a variety of Pleistocene material. The land form of

Wood County is primarily a result of glacial thru Pittsville bounds the northern shore of glacial Lake Wisconsin

where deposits are sands and sandstone. The southern and east central portion of the county, while not covered by ice during the glacial period, consists of well sorted deposits of clays, silts and sands left by glacial outwash and lake deposits. The remainder of the county consists of ground moraine deposits of clay, silt, and gravel and boulders.

The surface elevation lowers from the 1250 foot elevation in the north to 960 feet in the south. The slope is interrupted by the Marshfield Moraine (1360 feet), Powers Bluff (1481 feet), Cary Bluff (1340 feet), South Bluff (1136 feet)

and North Bluff (1182 feet) as well as a few lower hills.

Geology is concerned with the makeup of the solid matter that makes up the Earth including such things as rocks and soils.

Soils

Wood County is separated into three main soil groups. The northern portion of the County, roughly north of a line from Pittsville to Rudolph is characterized by loamy soil. This group is associated with uplands on nearly level to moderately steep slopes and are moderately level to moderately steep slopes. Most often these soils are moderately well drained. Agricultural uses are well suited to the loamy soils.

Sandy soils dominate the southeastern portion of the county. This area is a former glacial outwash plain which resulted in sandy soils. Most of these soils occur on nearly level slopes and range from somewhat poorly drained to well drained in the town of Saratoga and eastern parts of Port Edwards and Seneca.

Organic and alluvial soils are also found in the southern portion of the county in basins and depressions. The Wisconsin and Yellow River floodplains contain poorly drained sandy and loamy soils formed from recent alluvium. Other areas contain very poorly drained organic soils formed from partly decomposed plant remains. Cranberry bogs are well suited to these soils.

Climatology

The climate in Wood County is continental, characterized by large seasonal and daily ranges in temperature. Winters are usually cold and snowy and summers are generally warm with periods that are hot and humid. Precipitation on average is adequate for agricultural purposes, although some degree of soil moisture deficiency often occurs during the months of July and August. During the winter months prevailing winds are generally from the

west and northwest, and from southerly directions in the summer.

Agricultural Resources

General Farming

With the recent trend of the family farm disappearing across the Midwest, many would be surprised to see that currently 89.2% of the farms in Wood County are family-owned as shown in table 5-1. A drive through the county will show that although many farm buildings stand vacant or dormant, other larger farms, and hobby or recreational farming continue to manage the land that would otherwise be fallow. The general trend over time has seen the number of farms decrease, but the number of acres per farm increase.

With the introduction of mechanization in farming we see this shift start to take hold as early as 1935-1940 where the number of farms dropped from 3341 to 1979 respectively. As farm equipment has improved over time farmers have been able to manage more acres of land. Farming more acres of land and having equipment that is more efficient in planting and harvesting crops allows farmers to become more productive by improved efficiencies of scale.

**Table 5 - 1
Wood County Farm Ownership, 2002**

89.2%	Individuals or families
5.2%	Family Partnerships
4.6%	Family-owned corporations
1.0%	Non-family corporations

Source: *Wood County Agriculture: Value and economic impact, UWEX 2004.*

Agriculture is a major employer providing jobs for 3761 Wood County residents, or nearly 7 percent of the 2002 county's workforce of

Table 5 - 2
General Agriculture Facts - 2002

• Number of farms	1,108
• Land in Farms – Ave size (acres)	206
• Land in Farms – Median size	150
• Land in Farms (acres)	228,050
• Total cropland (acres)	140,061

Source: 2002 Census of Agriculture

54,527 people. The types of jobs range from farm ownership, and on-farm employees, to fuel suppliers and food processors. Every new job in agriculture generates an additional 0.6 jobs in Wood County.

In 2002, 1,108 farms in Wood County managed the resources of 228,050 acres of land, or 45 percent of all land in the County. This includes land used for grazing, cropland, and agricultural support land.

In 2002 agriculture generated \$537.8 million in economic activity, accounting for an estimated 10 percent of total economic activity in the

Table 5 - 3
Economic Activity Generated by Agriculture

\$380.6 million = **direct effect of agriculture including sale of all farm products and value-added products**

\$135.1 million = **purchase of agriculture inputs and services**

\$22.2 million = **economic activity from people who work in agriculture-related businesses spend their earnings**

\$537.8 million total impact

Source: Wood County Agriculture: Value and Economic Impact, UWEX 2004

Table 5 - 4
Wood County's Top Commodities Sales by Dollar Value - 2002

1. Milk	\$39 million
2. Cranberries	\$23.9 million
3. Cattle and calves	\$7.6 million
4. Grain	\$3.7 million
5. Nursery and Greenhouse	\$1.7 million

Source: Wood County Agriculture: Value and Economic Impact, UWEX 2004

County. The breakdown of where this economic activity took place is show in Table 5-3.

The top five commodities produced in the County are shown in table 5-4 along with their sales by dollar value. Milk and cranberries account for \$39 million and \$23.9 million in annual sales respectively. The sales of the top 5 commodities total \$75.9 million, with the sale of milk and cranberries accounting for \$62.9 million of the sales.

Dairy Production

Dairy is the largest part of Wood County's agriculture contributing \$438 million to the county's economy. Of the \$438 million, \$49.4

Figure 5-2
Impacts of Dairy Farming

- One dairy cow generates \$1,668 in direct income to producers.
- Each dairy cow generates more than \$15,000 to \$17,000 of economic activity.
- Thirteen plants process dairy products in Wood County.
- Wood County's on-farm milk production and dairy processing account for 1,907 jobs.

Source: Wood County Agriculture: Value and Economic Impact, UWEX 2004

million accounts for on farm production and sale of milk, and \$388.7 million accounts for the processing of dairy products. In 2002 there were 330 dairy herds comprised of 20,736 dairy cows. Figure 5-2 shows the significant impact that dairy farming has to the economy in the County.

Cranberry Production

Wood County is the top producer of cranberries in the top producing cranberry state in the country. Cranberries are a native species to Wisconsin and require access to an abundant water supply for maintaining growing conditions, harvesting, and protection from frost. Although the majority of cranberry farming is in the southwest portion of the county where swamp and marsh land is predominant, upland cranberry farming is becoming more prevalent. The highest concentration of bogs can be found in the township of Cranmoor. Many of the bogs are in the same families that established them in the late 1800's, and have seen changes in all aspects of the operations. Given the long history of production in the area, many advances in growing and harvesting technology can be attributed to local operations.

In 2002 Wood County had 4682 acres of cranberry bogs in production by 68 farms that produced 3,208,000 barrels of fruit. Low barrel



**Table 5-5
Market Value of Agriculture
Products Sold - 2002**

	Sales by Market Value	Percent of total
Dairy	\$38,958,000	48.5
Fruits & Berries	\$3,888,000	29.7
Cattle, calves & hogs	\$8,339,000	10.3
Grain & oil seeds	\$3,667,000	4.6
Vegetables, Nursery	\$2,903,000	3.6
Other crops & hay	\$1,615,000	2.0
Total	\$80,361,000	100

Source: 2002 Census of Agriculture

prices in the late 1990's due to favorable growing conditions, and an increase in cranberry farming activity, caused cranberry barrel prices to drop. In recent years the price per barrel of cranberries has increased due to stronger demand.

In addition to cranberry production, there are 3 cranberry receiving stations and several processors that specialize in value-added products. In recent years a number of factors including increased marketing of cranberries and more variety of value added products have brought demand in line with supply.

Over the years Wood County and cranberry growing have become synonymous. In the 1972 Economic Analysis portion of the Wood County Comprehensive Development Plan, the untapped potential for attracting tourists to the area for the cranberry culture, and specifically the harvest is mentioned. Over recent years marketing of cranberry culture has been a source of pride for residents of Wood County, and a source of interest to the tourists that visit the area to view the unique and somewhat mysterious agricultural practice.

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. In 2009 there are 188 animal waste storage facilities in Wood County. According to the Land Conservation Department records, 84 of these structures were designed and installed to meet technical standard and specification that were in effect at the time they were built. It is estimated that there are 104 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 administered by the County Land Conservation Department. 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.

Farmland Protection

In Wood County, townships have the ability to plan for the long term preservation of farmland.

Preserving areas that are best suited for raising crops and grazing can be implemented by towns in a variety of ways including zoning and residential density limitations.

Farmland Preservation Program

The Wisconsin Farmland Preservation Program (FPP) was created in 1977 to preserve agricultural resources by supporting local government efforts to manage growth. The Program became available to Wood County landowners in 1984. The original intent of the FPP was to protect productive farmland from urban sprawl and unplanned rural development. The program supports soil and water conservation management techniques and is regulated by the Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP).

For a County to be eligible to participate in the Farmland Preservation Program the County must have an adopted agricultural preservation plan. Contracts between landowners and the State cover agricultural activities including beekeeping, grazing, and sod farming among many others. Contracts range between 10 to 25 years and remain in effect even as the property changes ownership. Once in the program, the landowner has the right to claim credits on their income tax, with the level of relief based on household income and property taxes paid. Property in the program cannot be subdivided into less than 35 acre parcels. Land under the FPP must also follow crop rotation and tillage method identified in a mutually agreed upon conservation plan.

Interested landowners can apply for the FPP by picking up an application from the Wood County Clerk's Office or Land Conservation Department. Deadline for application is June 30th of any given year.

In recent years the number of acres as well as the number of participants in the FPP has drastically decreased. Table 5-6 shows the

extent of the decreased participation from 1996 compared to years 2000 and 2008.

Table 5-6
Farmland Preservation Program (FPP)
Participation in Wood County

Year	1996	2000	2008
Participants	122	59	39
Acres	19,815	10,448	4,970

Source: 2002 Census of Agriculture

Working Lands Initiative

Past population growth and development needs have impacted the amount of available productive farmland in the state. Rural sprawl has reduced the acreage of available farmland in some rapidly developing areas at an alarming rate. Agriculture is a defining characteristic of Wisconsin's identity and a predominant influential factor on the rural landscape. The Farmland Preservation program of Wisconsin has historically been used to encourage the preservation of farmland on a voluntary basis. In the future the Farmland Preservation Program will continue to be used as a tool to preserve farmland as a part of the Wisconsin Working Lands Initiative (WLI). In addition to the Farmland Preservation Program, the WLI includes programs that offer incentives for creation of Agricultural Enterprise Zones, creates a program for the purchase of agricultural conservation easements, and encourages participation in voluntary farmland preservation zoning. Starting with the 2009-2011 Wisconsin Biennium budget, the programs of the WLI will gradually be rolled out, and will be funded by the redirection of existing funding mechanisms. Figure 5-3 summarizes the programs that make up the WLI.

Natural Resources

Wildlife

The Wood County landscape provides a rich and diverse habitat for wildlife species of songbirds, waterfowl, raptors, shorebirds, reptiles, amphibians, fish and mammals. The abundance of wildlife in the area is the result of a complex variety of factors, and can be attributed to the management practices of the federal government, Wisconsin Department of Natural Resources, the County, and property owners. Some of the common practices used to provide or improve wildlife habitat include tree, shrub, and food plot planting; logging practices which promote habitat in fence rows and odd shaped areas; pond building; and proper land use planning and practices.

The presence of wildlife contributes to the active and passive outdoor recreation opportunities available. Active outdoor recreation activities that depend on a healthy wildlife population include hunting. Hunting is for many families a tradition that brings generations together to share a common interest, for others it is a relaxing hobby that connects them with the outdoors. When people hunt they spend money on gas, licenses, hotel stays, and meals. Knowing they will have access to an ample amount of public lands in Wood County, many individuals travel here and spend money here in pursuit of trophy game, and some peace and quiet in the woods. Passive recreational activities such as wildlife viewing and bird watching also bring people to the County, and with them their travel and recreation dollars.

Many residents of the county enjoy living here because the presence of wildlife contributes to their quality of life. In recent years however, many species of animals have adapted to increased development pressure. It is not

uncommon to see animals like deer, turkey, raccoons, and even bear or wolves in areas considered to be urban or suburban. Although many people enjoy the opportunity to view wildlife in their back yards, there are some cases

Figure 5-3 Programs of the Wisconsin Working Lands Initiative

Farmland Preservation Plans

Planning is essential for farmland preservation as population growth and development are straining already scarce land resources. Through the Working Lands Initiative, farmland preservation planning will:

- Modernize farmland preservation plans to meet current challenges
- Provide planning grants to counties
- Provide flexibility for designating planning areas for farmland preservation
- Improve consistency between local plans
- Simplify the certification process and streamline state oversight.

Agricultural Enterprise Area

An Agricultural Enterprise Area (AEA) is a contiguous land area devoted primarily to agricultural use and locally targeted for agricultural preservation and development. The designation of an AEA by the state is based on a voluntary local application.

- Voluntary participation of county and local governments
- Participation of at least 5 farm owners
- Located in a farmland preservation area
- Contiguous land area
- Primarily in agricultural use
- State approval

Farmland Preservation Zoning

Farmland preservation zoning standards under the WLI give county and local governments more flexibility, consistent with effective farmland protection.

- Increase available income tax credits
- Establish new standards to increase local flexibility and reduce land use conflicts
- Improve consistency between local plans and ordinances
- Simplify the certification process and streamline state oversight
- Ensure compliance with state soil and water conservation standards

Purchase of Agricultural Conservation Easement Grant Program

An agricultural conservation easement restricts nonagricultural development of land covered by the easement. By voluntarily entering into an easement a farmer can be compensated for permanently limiting development of the property while protecting important resources. The covered land remains privately owned and managed.

- Privately owns and manages the land
- Retains land for farming, while augmenting income
- Retains title to the property
- Can collect farmland preservation income tax credit
- Continues to be responsible for property tax

Source: *Wisconsin Department of Agriculture, Trade and Consumer Protection*

where damage to property has caused communities to consider taking action to control excessive animal populations. When the Department of Natural Resources issues hunting permits and structures regulations, they consider the impact that it will have on wildlife resource management. On request the WDNR does work with cities, villages, and towns, to address their unique wildlife management issues such as overpopulation.

The rural agricultural landscape has contributed to the healthy population of wildlife in the County. Many animal species take advantage of the available food source found in the crops that farmers plant. The impact that wildlife makes on crops varies from unnoticeable to the extreme of threatening the farmers necessary crop yield. The County Land Conservation Department works with farmers who are experiencing crop damage to reduce or prevent future damage, and in some cases compensates for lost crops.

Threatened and Endangered Species

According the WDNR, species are listed as “endangered” when their existence as a viable component of this state’s wild animals or wild plants is determined by the Department to be in jeopardy on the basis of scientific evidence. Threatened species are listed when it appears likely, within the foreseeable future, on the basis of scientific evidence to become endangered. The WDNR also has a “special concern” category for species where there is a suspected abundance or distribution concern. The purpose of this category is to focus attention on certain species before they become endangered or threatened. Table 5-7 lists the threatened and endangered species present in Wood County.

Natural Heritage Inventory Program

The Wisconsin Natural Heritage Inventory Program (NHI) is part of an international network of NHI programs. This network was established by The Nature Conservancy and is coordinated by NatureServe, an international non-profit

Table 5-7
Threatened and Endangered Species – Wood County

Mammals	Timber Wolf
Birds	Bald Eagle Cerulean Warbler Great Egret Osprey Red-Shouldered Hawk
Reptiles and Amphibians	Eastern Massasauga Rattlesnake Western Slender Glass Lizard Wood Turtle
Fish	none
Mussels and Snails	none
Insects	Frosted Elfin Butterfly Karner Blue Butterfly
Plants	Goblin Fern

Source: “THREATENED & ENDANGERED SPECIES IN FORESTS OF WISCONSIN; A Guide to Assist with Forestry Activities”, Compiled by David A Kopitzke, University of Wisconsin – Richland, Edited by Dr. James M. Sweeney, International Paper Company

organization. The three objectives of the NHI are to: collect information of occurrences of rare plants and animals, high-quality natural communities, and significant natural features in Wisconsin; standardize this information, enter it into an electronic database, and mark location on base maps for the state; and use this information to further the protection and management of rare species, natural communities, and natural features. NHI programs use a standard methodology for collecting, characterizing, and managing data. With data being standardized it can be combined at various scales to address local, state, regional, and national issues. NHI programs focus on locating and documenting occurrences of rare species and natural communities, including state and federal endangered and threatened species. Inventories are conducted around the state and the results are included in the NHI Working List. Natural Heritage Inventory data are used for a variety of purposes including land management,

state land master planning, community planning, conservation planning, and environmental review of public and private activities across the state. Appendix 5-A includes NHI for Wood County.

Invasive Species

The recent onslaught of invasive species from other regions and countries is cause for concern. These non-native plants, animals, and pathogens displace native species, disrupt ecosystems, and harm recreational activities such as fishing, hiking and boating. They also damage commercial, agricultural, and aquacultural resources. Damage from invasive species goes beyond the natural environment, and can have lasting economic impacts both in lost recreation revenue dollars and cost to control them.

Once introduced to an area invasive species are difficult to control because they lack the predators and competitors that they face in their homelands. They can spread rapidly, and aggressively, and may be impossible to get rid of completely. People play a major role in spreading invasive species, but can also prevent them from spreading. One of the most effective efforts to control invasive species is through educating outdoor enthusiasts on how to reduce and control the spread of invasive species.

Many are surprised to learn that some of the plants commonly used for landscaping, are considered invasive species that can rapidly spread and threaten the survival of native plants. The WDNR maintains a list of common invasive species in the state, and offers suggestions on how to control their populations and prevent spreading to new areas.

Groundwater Resources

Groundwater is the source of all drinking water in Wood County, whether by drilled or sand point wells of rural homeowners, or high-capacity municipal wells. Commonly accepted estimates

of water usage per capita is 50 to 75 gallons each day per person. If we use these numbers and Wood Counties 2000 US Census population of 75,555 people, we end up with 3,777,750 and 5,666,625 gallons used each day respectively. These estimates are being calculated purely to get an idea of the magnitude of consumption in the county each day. Water consumption by agricultural, industrial, commercial, government, general residential cleaning and yard care, are not included in this number. Actual water drawn from groundwater resources could possibly double considering total of all daily water usage. With the usage estimates in mind it is apparent that we can no longer take for granted a clean and adequate water supply, but need to view groundwater as a resource that requires management. Figure 5-3 lists some of the factors that may impact the availability of adequate groundwater resources.

Generally, groundwater in the County is acceptable as far as quality and quantity of this resource is concerned. Regardless of the source, many factors determine the quality of this limited resource. Although the water quality of municipal wells is monitored and controlled on a daily basis, the monitoring of private wells is left to the discretion of the homeowner. Many times homeowners do not question the quality of their water until there is a change in taste, smell or color, allowing many critical but unnoticeable water problems to persist over time. Many typical problems that a homeowner may experience with water quality may be remedied by installing a home water conditioning or treatment system, or drilling another well at a different depth.

With groundwater being such an important resource, one would expect an accurate and complete inventory of wells in Wood County and beyond to be available, but this is not the case. Although all new wells are required to be reported to the WDNR, several factors make the creation of an inventory challenging: Many wells were installed years ago prior to awareness of the importance of protecting the quality and

quantity; shallow sand point wells can still be installed by homeowners without a permit or notifying anyone. The Wood County Planning Office estimates that there are 12,850 private residential wells in the County.

Water quality issues will likely never go away, and in fact may get more complex as development pressures increase in many areas of the county. At some point it may be to the benefit of the residents of the county to make a concerted effort to inventory existing wells and develop a means to monitor water quality through testing. Municipalities may also want to consider implementing wellhead protection plans or ordinances to perpetuate the water quality and quantity of the high capacity wells that serve cities and villages.

Shoreland Zoning

Uncontrolled use of the shorelands and pollution of the navigable waters of Wood County, can adversely affect the public health, safety, convenience, and general welfare. The legislature of Wisconsin has delegated

Figure 5-4 Potential Sources of Groundwater Contamination

- Active or Inactive Landfills
- Private Onsite Waste Treatment Systems
- Mines, Pits, Quarries
- Animal Feedlots
- Road salt usage and storage
- Underground pipelines and storage
- Chemical Storage
- Residential Fertilizer or pesticide application
- Landspreading of sewage treatment plant sludge
- Development / over development in unsuitable areas
- Air pollution
- Industrial or manufacturing pollution
- Stormwater Runoff
- Nonpoint runoff from urban areas

Source: Wood County Planning & Zoning

Figure 5 - 3 Potential Shortage of Groundwater Capacity

- Development / overdevelopment in unsuitable areas
- Lack of water conservation education programs
- Development in groundwater recharge areas
- Prolonged drought conditions
- Water usage exceeding aquifer recharge for prolonged periods
- High capacity well pumping

Source: Wood County Planning & Zoning

responsibility of shoreland zoning to the counties and local units of government. The Wood County Planning and Zoning Department administers the Wood County Ordinance #704, for all unincorporated areas of the county. The jurisdiction of Ordinance #704 includes areas within 1000 feet of the ordinary high-water mark of lakes, ponds, or flowages, and areas within 300 feet of the ordinary high-water mark of navigable rivers or streams. Goals of shoreland zoning in the County include the following: prevention and control of water pollution; protection of spawning grounds, fish and wildlife; control building sites; placement of structures and land uses; and preserve shore cover and natural beauty. Residents are encouraged to contact the Wood County Planning and Zoning Department, their municipality, and the Department of Natural Resources prior to commencing any construction, filling, grading, dredging, lagooning, and cutting of shoreland vegetation.

Point Source Discharge

The Department of Natural Resources regulates municipal and industrial operations that discharge wastewater to surface or groundwater through the Wisconsin Pollutant Discharge Elimination System (WPDES) permit program. Point source dischargers, facilities discharging to surface water from a specific point such as from the end of a pipe, must meet either the federal minimum requirement for secondary

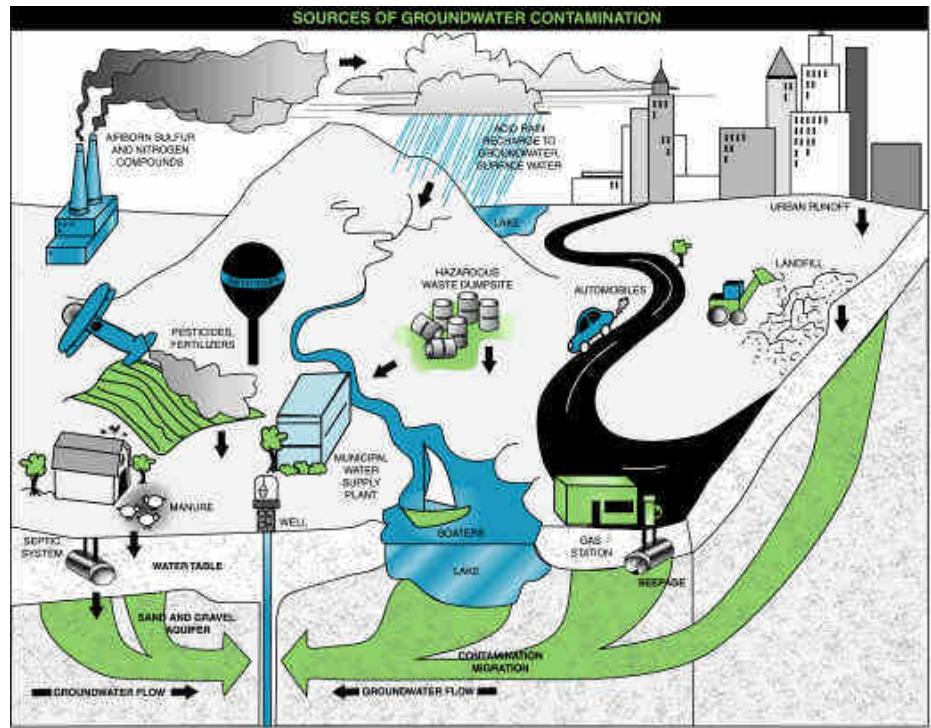
treatment in the case of a municipality, and technology-based categorical (base level) limits for industries, or the discharges must meet levels necessary to achieve water quality standards, whichever is more stringent. The WDNR establishes regulations and monitors compliance of all discharges.

Surface Water Resources

Water Resources cover approximately 47.78 square miles or 17¹ percent of Wood County. Although they are an obvious limiting factor to landuse and future development, they are critical to the economy, quality of life, and sustainability of living in Wood County.

The quality of water resources is important to sustaining a healthy wildlife population, creating a safe and desirable place for recreation purpose, and is vital for agricultural practices. Clean water provides an environment for aquatic species to thrive and reproduce in. When a water body experiences problems with pollution or lack of oxygen, many other plants and animal species that live on, in or near water bodies suffer as a result. Clean surface water is also important to water recreation activities including swimming, boating and fishing. In Wood County water related recreation activities are very popular and are a contributing factor to the overall quality of life of the area. Clean lakes, rivers and streams also help the economy by

Figure 5-5
Sources of Groundwater Contamination



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drawing tourists to the area to recreate and vacation.

Water resources are classified for the purpose of enforcing Wisconsin boating restrictions and applying provisions of the shoreland access and zoning laws. A water body must be classified as a lake or river according to the Wisconsin Department of Natural Resources. A Wisconsin court ruling over 100 years ago found that: the controlling distinction between a stream and a lake or pond is that in the one case the water has a natural motion, a current, while in the other, the water is, in its natural state, substantially at rest...Ne-pe-nauk Club v. Wilson, 96 Wis. 290 (1897)

Classification of a water body as either a lake or river is many times disputed and subject to additional testing, criteria or ruling.

¹Wisconsin Department of Natural Resources, "Wisconsin Lakes Directory – Wood Co. (Alphabetic by County)" [<http://www.dnr.state.wi.us/org/water/fhp/lakes/county/wood.htm>] 16 July 2007.

Additional terminology that is very relevant to the water resources of Wood County are the terms "flowage" or "impoundment". Both terms are synonymous and are used to describe the pool created by a dam.

Nonmetallic Mining

Nonmetallic mining involves the extraction of stone, rock, sand or other similar material from natural deposits. This is a widespread activity in Wood County with the most common examples of nonmetallic mines being quarries and pits. Materials extracted can range from aggregate for construction; sand, gravel and crushed limestone or dolomite for road building; peat for gardening and horticulture; dimension stone for use in buildings, landscaping, and monuments; and sand that is exported for use by the oil industry.

Wisconsin Administrative Code NR 135 requires that all counties adopt and enforce a Nonmetallic Mining Reclamation Ordinance that establishes performance standards for the reclamation of active and future nonmetallic mining sites, but not sites abandoned prior to August 1, 2001. The Wood County Land Conservation Department administers the reclamation Ordinance that went into effect on August 1, 2001. Ordinance standards address reclamation, surface water and wetland protection, groundwater protection, topsoil management, grading and slopes, maintenance and a variety of other issues. In August of 2009 there were 51 active quarries in Wood County.

Although the County is required to have a reclamation ordinance that is focused on how the site will be left following the mining operation, sighting of nonmetallic operations is dependant on local zoning ordinances or lack thereof. Some towns in Wood County through local zoning have identified appropriate areas for mining operations, established regulations that set hours of operations, safety features such as fencing, and noise thresholds, among other requirements.

Dams

There are 105 dams in Wood County that serve to control water flow that could potentially lead to dangerous and costly flooding. Dams were constructed for a variety of reasons including providing flowages for transporting goods, for powering lumber and grain mills, and for controlling flow for agricultural purposes. Fluctuating seasonal precipitation is monitored to the greatest possible extent to control stream, impoundment and flowage depths, and rate of water flow through the dams. In addition, some of the dams are used to generate hydroelectricity that powers some Wisconsin Rapids Area paper mills as well as other local businesses and residents' homes. Maintenance of dams can be costly, and in some instances they are removed instead of replaced, restoring the natural flow of the water.

In Wood County of the 105 dams, 25 are classified as large and 75 are classified as small, and 5 are not classified as either. Large dams measure at least 6 feet high and taller, and are capable of 50 acre feet of storage or more, or measure 25 feet high or more with 15 acre feet or more of storage. Small dams are classified as any dam that falls below the threshold height or storage capacity of large dams.

Ownership and maintenance varies among private and public entities. In the early 1980's the WDNR developed standards for design, construction and reconstruction of large dams, enacted rules for warning signs and portages as well as other public safety measures. In 1991, procedures for implementation of maintenance, repair, modification or abandonment were put into place and a grant program to fund some of these costs initiated. The WDNR currently deals with permitting for new dam construction, repairs, reconstruction, ownership transfers, water levels, and abandonment.

Lakes

Wood County is abundant with surface water resources comprising approximately 4774 acres. The Wisconsin Department of Natural Resources has identified 78 lakes of which 13 are named and 65 are unnamed. The listing includes the Wisconsin River, the county's most prominent water feature, and it is identified by the 6 flowages; Biron Flowage, Wisconsin Rapids Flowage, Centralia Flowage, Port Edwards Flowage, Nekoosa Flowage, and the tail of the Petenwell Flowage. Although legally considered a river, the Wisconsin River is included with the lake inventory because of the large surface area that it covers that is more typical of a lake than a river. Although contiguous, the Wisconsin River flowages are somewhat confined water features separated by 4 dams that control the rate of water flow for power generation and regulating seasonal flow.

Natural lakes in the County are generally small and very shallow with recreation potential mainly centered around wildlife, waterfowl and limited fishing. Man-made lakes or flowages provide most of the recreation water in the county.

Rivers and Streams

There are 82 named streams that total 389.7 miles collectively. Although there is no legal distinction made between the terminology usage of river and stream, streams generally flow into or are considered tributary to major rivers. The major rivers and streams of Wood County with their surface area and mileages are listed in table 5-8.

The Wisconsin River

The Wisconsin River is the most prominent "river" feature in Wood County flowing southwesterly 8.6 miles through the southeast corner of the County. The portion of the Wisconsin River that runs through the county is divided into 6 flowages, and for this reason included with the lake inventory, However,

**Table 5-8
Wood County Major Rivers and Streams**

Rivers	Surface Acres	Miles
Wisconsin River	567.1	8.6
Yellow River	282.4	43.6
East Branch Yellow River	7.13	4.9
South Branch Yellow River	10.91	5.0
East Fork Black River	85.09	18.0
Streams (over 10 miles long)	Surface Acres	Miles
Hemlock Creek	167.76	34.6
Mill Creek	55.47	26.3
Rocky Run Creek	41.75	16.4
Rocky Run Creek (to E. Fork Black River)	31.2	13.9
Moccasin Creek	23.4	13.3

Source: Wisconsin Department of Natural Resources

legally the Wisconsin River is considered a river and subject to shoreland access, zoning laws, and boating restrictions of a river.

The Yellow River

The Yellow River is second to the Wisconsin River in size. This river flows from the northwest corner to the south-central part of the county. Lakes Kaunewinne and Manakiki are small flowages on the Yellow River located in North Wood County Park and have limited recreation, mainly fishing. Lake Dexter is the main recreation area along this river. A county park surrounds this lake and has picnic and recreation areas for public use. The city of Pittsville also has a small city park located on the Yellow River.

East Branch Yellow River and South Branch Yellow River

The East Branch Yellow River and South Branch Yellow River are located in the far northwest corner of the county. The two tributaries of the Yellow River are undeveloped except for the one campground on the South Branch Yellow River.

Table 5-9
Wood County Exceptional Resource Waters

Waterbody Name	Portion within ERW Classification
Bloody Run Creek	All
Fivemile Creek	Hwy 13 down to CTH Z
Lynn Creek	All of stream in S16 T21N R5E upstream of cranberry bog
Rocky Creek	All of stream in S9 T24N R2E
Sevenmile Creek	From Range Line @ E section line of S13 T21N R5E

Source: Wisconsin Department of Natural Resources

East Fork of the Black River

The East Fork of the Black River Meanders into west central Wood County and then joins the Black River in Clark County. This river is undeveloped in Wood County.

Exceptional and Outstanding Resource Waters

Wisconsin has designated many of the state's highest quality waters as Outstanding Resource Waters (ORWs) or Exceptional Resource Waters (ERWs). These designations identify water resources that warrant additional protection from the effects of pollution. Wood County does not have any water bodies with the ORW designation, but has the 5 creeks listed in table 5-9 that are designated as ERWs.

Impaired Waterways

Every two years the listing of impaired waters, as defined by Section 303(d) of the federal Clean Water Act, is updated. The state is required to update the list with those waters that do not meet the state's water quality standards. This list identifies waters that do not meet numeric or narrative criterion, or meet the designated use of the water body. The most recent list was created in 2006 and with the 2-year update requirement will be updated in 2008.

There are 3 impaired waterbodies in Wood County according to the WDNR Proposed 2006 Impaired Waters List. On the Wisconsin River near Port Edwards there is a one-mile stretch that is on the list because of fish consumption advisory due to mercury contamination and contaminated sediment. Lake Dexter is included because of high bacteria levels that have caused beach closings. A 16.7 mile stretch of Mill Creek is included because of low levels of dissolved oxygen due to high amounts of phosphorous.

Resource Management Plans

There are many programs in place that offer incentives to manage natural resources. Some of the programs are mentioned in this element of the Comprehensive Plan, as well as other elements. Appendix 5-B includes a listing of federal, state, local and other programs available for property-owners to consider when implementing resource management programs. This list is cited in the Wood County Land and Water Resource Management Plan as a necessary resource for landowners to utilize.

State Natural Areas

The State Natural Area (SNA) program is designed to protect outstanding examples of Wisconsin's native landscape of natural communities, significant geological formations and archaeological sites. Of 552 State Natural Areas, 6 are located in Wood County. SNA's harbor natural features that are unaltered or have recovered from human disturbance. They also provide a relatively safe home for over 90 percent of plant and 75 percent of animals that are on Wisconsin's list of endangered or threatened species. Designated Natural areas are important for research and education, preservation of genetic and biological diversity, and provide a benchmark for determining impact of use on managed lands. The SNA program is located in the Department of Natural Resources' Bureau of Endangered Resources and advised

by the Natural Areas Preservation Council. Appendix 5-C lists the 6 SNAs in Wood County.

Conservation Organizations

There are many groups in Central Wisconsin that impact the natural, historical and cultural features of Wood County in a positive way. The structure and focus of these groups varies, but are funded primarily through donations and private funding, and work cooperatively with government agencies towards their goals. The following list shows some of the groups that have made a significant impact in Wood County.

Friends of Powers Bluff and Environs, Inc. – Working to preserve the rich history and unique natural features of the Powers Bluff Park.

Mill Creek Watershed, Inc. – Educates the public about natural resources and programs that can help improve the environment and increase the overall value of Mill Creek.

Golden Sands Resource Conservation and Development (RC&D) Council, Inc. – Works to improve the area's economy, while conserving its natural resources.

Air Quality

The Wisconsin Department of Natural Resources works to maintain and improve Wisconsin's air quality in order to protect public health and the environment. Many air pollution requirements in the state statutes and rules reflect mandates contained in the federal Clean Air Act. The Clean Air Act created by the Environmental Protection Agency (EPA) also is reflected in Wisconsin air pollution rules.

Air quality can affect individuals both directly and indirectly. Direct impacts of poor air quality can affect individuals acutely or chronically based on the type of pollutant, concentration, and duration of exposure. Direct impacts of poor air quality are a result of individuals breathing the contaminated air. Indirect impacts of poor air

quality can affect the quality of food we eat and the water we drink as pollutants deposited on land or water enter the food chain and bioaccumulate. The DNR actively monitors air quality of air pollutants through a statewide monitoring network.

The DNR issues air pollution control permits that fall into the categories of construction permits or operation permits. Construction permits ensure that proposed projects can meet air pollution standards before they are constructed. Operation permits set emission limits and establish monitoring, record-keeping and reporting requirements. The permitting process is intended to be transparent with all related documents including applications and modeling analyses being open records. According to the DNR there are 34 active construction permits and 52 active operation permits in Wood County. Some facilities in the County that emit air contaminants have pending permits and are exempt from DNR permits, or are operating without WDNR consent.

Air quality in Wood County meets the National Ambient Air Quality Standards (NAAQS) set by the Environmental Protection Agency for carbon monoxide (CO), nitrogen oxides (NOx), sulfur dioxide (SO₂), particulate matter (PM), lead (Pb), and ozone. The 6 aforementioned pollutants are known as the "criteria pollutants" because they are regulated based on human health-based and/or environmentally-based criteria for setting permissible levels.

Besides the "criteria pollutants" there are many other air pollutants that can be cause for health concerns. The origin of pollutants ranges from vehicle emissions, to industrial smokestack emissions. The DNR maintains a list of over 700 pollutants that companies should consider reporting to the best of their ability for their annual air emissions.

Parks, Recreation, and Open Spaces

The Wood County Park Recreation and Open Spaces Plan is typically updated on a five year cycle and takes a comprehensive look at park and recreation resources in the County. The plan inventories all existing resources and determines if they are meeting the needs of residents. Public input is an important component of the planning process in determining future capital improvements and

identifying future needs. The current Wood County Plan was adopted in 2001, and the next update is scheduled for 2009. By keeping the plan up-to-date, future projects that are identified in the plan are eligible for Wisconsin Stewardship Grant funding.

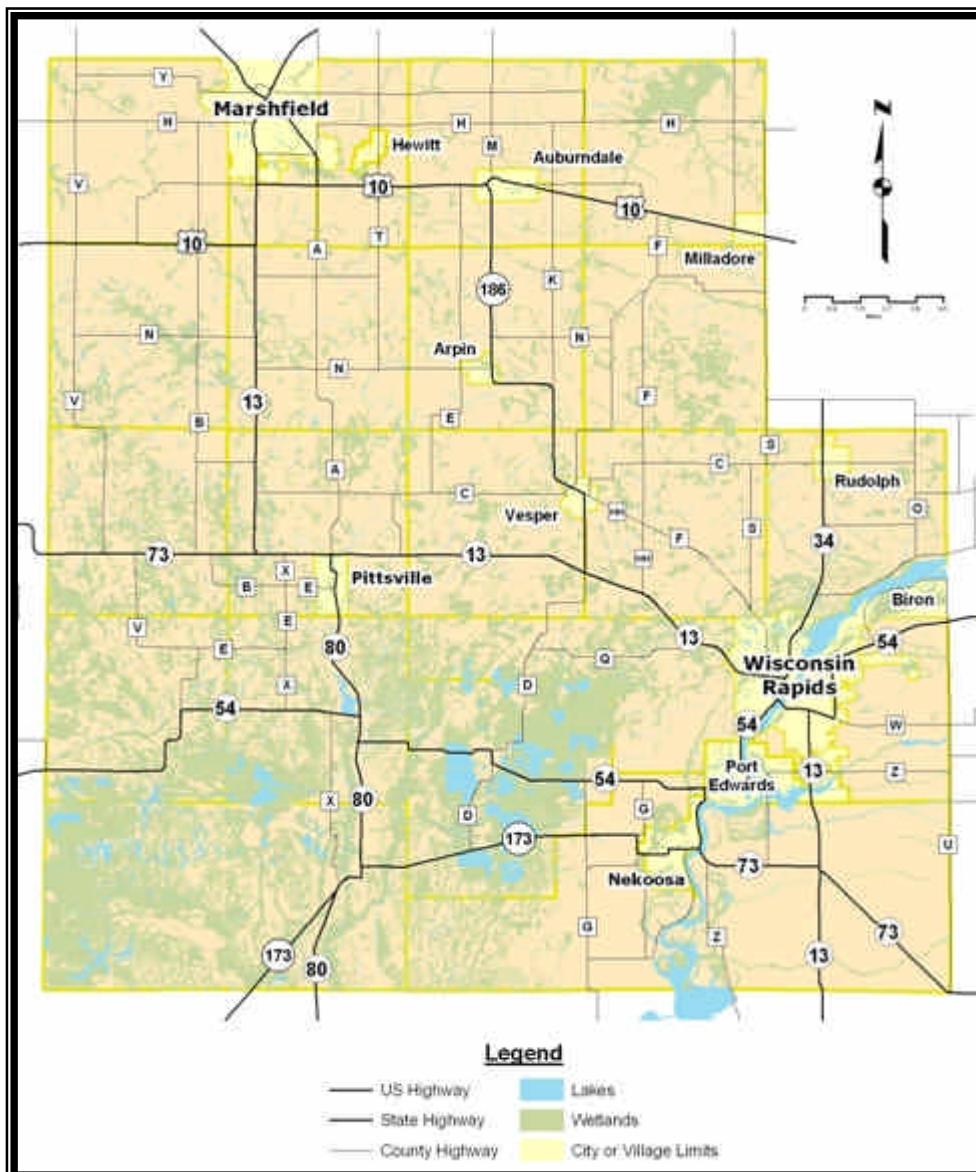
All of the towns, villages and cities in the County are included in the Park, Recreation and Open

Spaces Plan. In addition the Cities of Marshfield and Wisconsin Rapids, and the Villages of Hewitt and Biron have developed more detailed plans that can more adequately address future park and recreation needs by including more intensive public participation at the local level, and more detail on future projects.

The State Comprehensive Outdoor Recreation Plan (SCORP) is also referenced to get a better idea of regional and state recreation needs and trends. The SCORP is typically updated every 5 years and the next update is scheduled for 2010.

Wetlands

Wisconsin State Statutes, Chapter NR 103 defines wetlands as areas where water is at, near, or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation and which



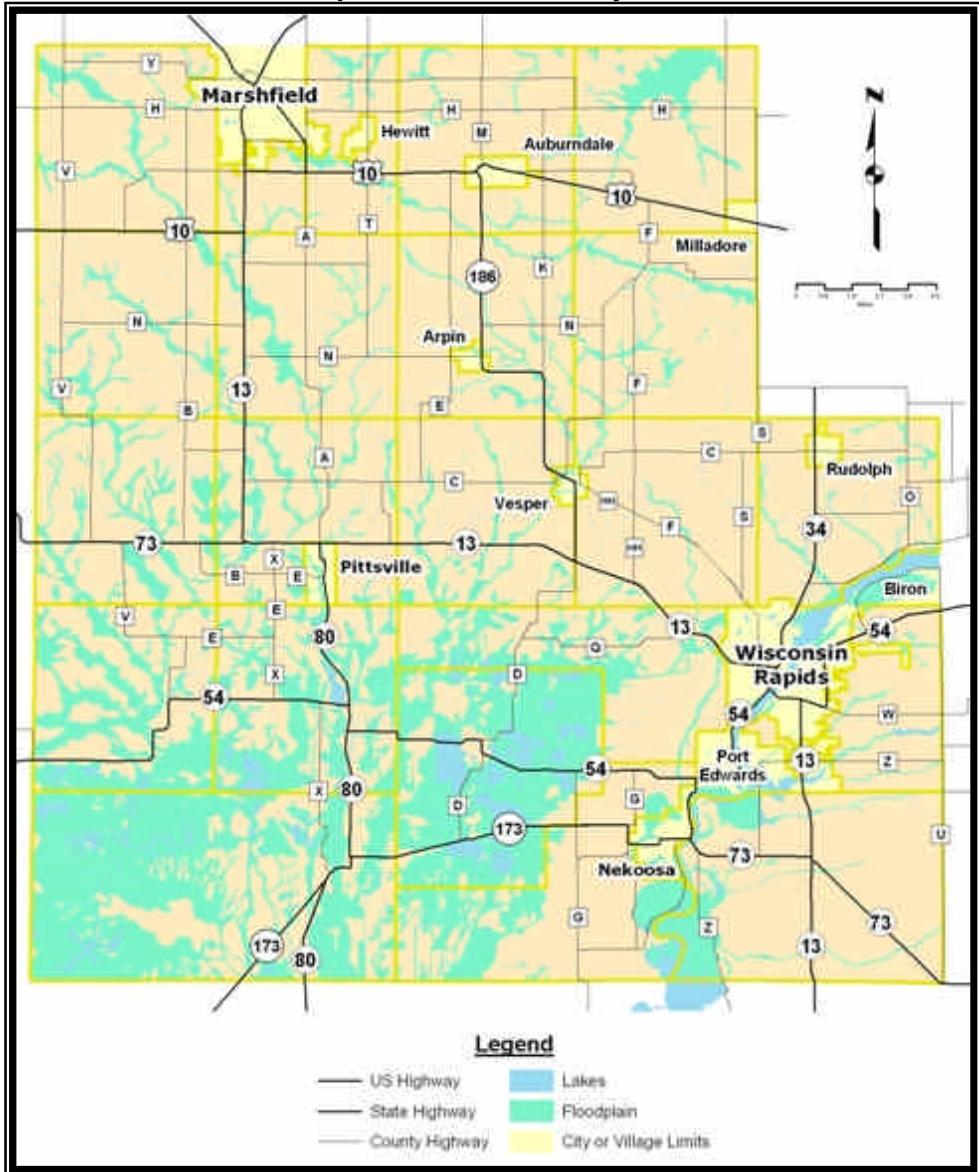
has soils indicative of wet conditions. They support aquatic or “water loving” plants and wet soils, and provide habitat for more species of plants and animals more than any other landscape. Over 75 percent of Wisconsin wildlife species use wetlands during some stage of their life. Wetlands serve as holding areas for water to prevent flooding, protect water quality by filtering many impurities, sediments, pesticides and animal waste, and provide hunters, anglers, and wildlife watchers with quality experiences. Wetlands may be seasonal or permanent and are commonly referred to as swamps, marshes, fens, or bogs.

In Wood County there are approximately 130,725 acres of wetlands, which is 25.8% of the total surface area, or 2.4% of the wetlands inventoried in the state of Wisconsin. Inset map 5-2 shows the area that wetlands cover in the County.

The Wisconsin Wetland Inventory was established in 1978 to help protect wetlands because about half of the state's wetlands have been destroyed in the past 200 years. The WDNR completed the initial inventory in 1984 and maps are available for the entire state. The WDNR wetland maps are the official wetland maps that all counties in the state reference. It is important to be aware that the Wood County's wetland inventory was compiled in 1984, referencing aerial photography from 1978 to

1979. Changes in land use in recent years, may have caused some agricultural lands that were not mapped as floodplain, and left fallow for a period of time, to revert back to wetland. In addition, it is worth noting that no wetlands smaller than 2 acres in size are included in the WDNR wetland inventory. In all cases where land use changes such as home construction are considered in areas where there is the possibility of wetland, the Army Corp of Engineers should be contacted to walk the property and flag the areas that are wetlands.

**Inset Map 5-3
FEMA Delineated Floodplain – Wood County**



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 over the past ten years, and since wetlands are difficult to create, in many cases, the mitigated wetlands are of lesser quality than the destroyed wetlands.

Floodplain

One of the most prevalent and destructive natural disasters is flooding. Despite risks of flooding, shoreland and many times flood prone areas are among the most desirable areas to build a residence because of the aesthetics and recreational opportunities. Regardless of proximity to surface water, the potential of flooding is a consideration that property owners need to consider when purchasing an existing home or building.

Floodplains are lowland areas that are adjacent to lakes, wetlands and rivers that are covered by water during a flood. The 100-year floodplain is the boundary of areas that have a one-percent chance of flooding in any given year. In Wood County approximately 200 square miles or 25 percent of the land area is considered to be floodplain. An estimated 518 residences are located within the floodplain. Inset Map 5-3 shows the location of floodplain in the County.

Floodplain management is the operation of a community program of corrective and preventative measures for reducing flood damage. These measures take a variety of forms and generally include requirements for zoning, land subdivision or building, and special-purpose floodplain ordinances.

A community's agreement to adopt and enforce floodplain management ordinances, particularly with respect to new construction is an important element in making flood insurance available to home and businesses owners. Currently over 20,100 communities nationwide voluntarily adopt

and enforce local floodplain management ordinances that provide flood loss reduction building standards for new and existing development.

Wood County Ordinance #703 is the floodplain ordinance that provides a uniform basis for the preparation, implementation and administration of sound floodplain regulation for all floodplains in unincorporated areas. This ordinance is necessary to prevent increases in floodplain elevation that could increase flood damage and increase conflicts among property owners. In addition, for residents to remain eligible for Federal Emergency Management Agency (FEMA) flood insurance through the National Flood Insurance Program this ordinance needs to be in place, and properly administered. The County Planning and Zoning Department administers this ordinance and anticipates amending it in 2009 to include reference to updated floodplain boundary maps.

Although the floodplain maps were updated in 2007-2009 utilizing the best information available, there is a need for better quality, more accurate floodplain mapping in the future based off of higher quality elevation information. Currently the burden of proof for floodplain boundary determination is on the property owner. Many times this is a cost prohibitive exercise for the property owner, and can deter development in areas that may safely accommodate it. Having floodplain mapping of marginal accuracy also results in property owners many times paying for flood insurance when it really is not necessary.

Natural Communities

A natural community is comprised of plant and animal species, living together in a particular area, in a particular time, in a particular habitat. Many times communities are named for prevalent plant species, prominent environmental feature, or combination of both. Communities can range in size from just a few acres to thousands of acres. Although natural

communities are not legally protected, they provide habitat for many endangered or threatened species, offer educational opportunities, and basis for future preservation or recognition. In Wood County the following communities exist: Sand Prairie, 1997; Northern Mesic Forest, 1993; Southern Mesic Forest, 1993; Northern Dry-mesic Forest, 2005; Southern Dry-mesic Forest, 1997.

Managed Forest Law (MFL)

The MFL program was initiated in response to the negative impact of overcutting and lack of forest management practices in the state. The purpose of the program is to promote good forest management through property tax incentives. Practices that improve forest management are required to be included in an approved forest management plan written by a certified plan writer or DNR Forester. The management plan can address harvesting and thinning timber, tree planting, erosion control, and wildlife measures. Enrollment in MFL is open to all private land owners of 10 or more acres of woodlands. Under MFL the landowner agrees to a management plan for a period of 25 to 50 years. Under Managed Forest Law, the landowner has the choice to enroll the land as either open to the public, or closed at a higher property tax rate.

Forestlands

Forestlands are one of the most prominent features in Wood County. Forestland encompasses approximately 215,400 acres, or 42% of the County (USDA, 1996). The predominant species are aspen, white birch, conifers, and oak.

In 1932, Wood County established a county forest by entering 13,270 acres under the forest crop law of Wisconsin. Additional acreage obtained through the years has increased the size of the County Forest to 37,535 acres. Most of the County forestland is formed on the

southern portion of the County and consists of flat, sandy, lake plain topology.

Many large blocks of industrial forest provide wood products that are important to the economy. Much of this land is enrolled in Forest Crop Law or Managed Forest Law programs and offers public recreation opportunities.

In recent years forest-based recreation has expanded rapidly. Hiking, mountain biking, cross-country skiing, hunting, fishing, berry and mushroom picking, bird watching, and sightseeing are just some of the activities that outdoor enthusiasts of all ages can take advantage of.

Historic and Cultural Resources

The National Register of Historic Places is a listing of properties of local, state, and national significance. The register contains districts, sites, buildings, structures and objects of distinguishable American culture, history, engineering, and architecture. There are over 85,000 places currently in the listing, and new sites can be considered for the National Register through a formal nomination process.

The Wisconsin State Register of Historic Places is very similar to the National Register. Most of the properties listed in the National Register are also listed in the State Register. The process for registration of properties is simultaneous for the state and national register. In order to be eligible a site must meet at least 1 of the 5 requirements listed in Wis. Stat. § 44.36.

Most of the properties in the listing are private residences or under private ownership and therefore access is limited. Many of the property owners choose to display an informative plaque regarding the age, design, and brief history of the structure. Inclusion on the register does not limit the private owners from future sale or alterations to the property. However, when alterations are proposed to publicly-owned buildings the State Historic Preservation Officer

at the Wisconsin Historical Society must be notified of any plans or proposed actions that will affect any listed property. Plans to alter any public registered buildings may be negotiated to reduce adverse structural or design impacts. According to the State of Wisconsin and National Register of Historic Places, Wood County has 14 historic places. The majority of the listings are found in the Marshfield area with only 3 listing in the Wisconsin Rapids area and one at the Powers Bluff Recreation Area.

Historic Properties Listed on Registries

The Wisconsin Architecture and History Inventory (AHI), is maintained by the Wisconsin Historical Society and lists historical and architectural information on properties in the

State. The AHI contains data on buildings, structures, and objects that illustrate Wisconsin's unique history. The inventory has been compiled over the past 25 years from a variety of sources. The majority of the properties in the inventory are privately owned, and some may have been altered or do not exist. In 2007 there were 979 properties in Wood County found in the AHI, and over 120,000 properties in the State.

The accuracy of the information contained in the AHI is dependant on participation from residents from across the state that report information to the AHI. In order for the information to remain useful, residents in Wood County should communicate any inaccurate or outdated information they come across in the AHI.

Table 5-10 shows the sites in the County that

**Table 5-10
State and National Registry
Wood County - 2007**

Historic Name	City/Village	Civil Township	State Registry	National Registry
Central Wisconsin State Fair Round Barn	Marshfield		X	X
Daly, Elizabeth, House	Wisconsin Rapids		X	X
Marshfield Central Avenue Historic District	Marshfield		X	X
Marshfield Post Office	Marshfield			X
Marshfield Senior High School	Marshfield		X	X
Pleasant Hill Residential and Historic District	Marshfield		X	X
Purdy, Willard D., Junior High and Vocational School	Marshfield		X	X
Skunk Hill (Tah-qua-kik) Ceremonial Community		Arpin	X	X
Upham, Gov. William H., House	Marshfield		X	X
Wahle—Laird House	Marshfield		X	X
Wakely's Tavern		Saratoga	X	X
Wakely Road Bridge		Saratoga	X	X
West Fifth Street – West Sixth Street Historic District	Marshfield		X	X
West Park Street Historic District	Marshfield		X	X

Source: Wisconsin National Register of Historic Places, 2007

are included in both the state and national registry of historic places.

Archeological Resources

According to records at the Wisconsin Historical Society, there are presently 163 archaeological sites in the County. Eight of these sites have been determined to be eligible for the National Register of Historic Places, and all 8 are located along the Wisconsin River. Most of the sites are significant because they were early Native American villages or burial grounds, or they show signs of an undetermined prehistoric life.

Very little systematic effort has been made to inventory archaeological sites in the County, and for that reason the Wisconsin Historical Society feels that there are many more possible sites of historical value that have not been identified. The Wood County Park, Recreation and Open Spaces Plan adopted in 2001 recommends a more thorough study to identify possible sites of archaeological importance in the County before more sites are inadvertently destroyed.

Cultural Resources

Wood County has a rich variety of cultural resources. Because of the number, nature, and variety of resources it is difficult to create a comprehensive listing. Detailed listings of cultural activities may be available in local comprehensive plans.

A wide variety of cultural experiences provides entertainment and serves to broaden cultural horizons. Figure 5-6 lists some activities that can be considered cultural experiences.

Figure 5-6
Cultural Resources

Visual Arts	Educational Experiences
Music	Theater
Dance	Ethnic Diversity
Literature	Museums & Galleries
History	Festivals

Figure 5-7 Cultural Event Trends

- Attendance at major Wood County cultural events exceeded 32,000 in 2005. This was a 1.7% increase from 2001.
- The number of cultural events has increased steadily from 2003 to 2005.
- Attendance at Cultural events in Wood County shows slight growth from 2003 to 2005.

*In 2002 federal, state and local government support for the arts accounted for 12% of total funding, while private contributions provided 88% of funding.

Source: 2006 Wood County Community Asset Survey, referencing 2005 Cultural Arts Survey

*funding breakdown represents the eight largest cultural arts organizations in Wood County in 2005.

The Wood County Community Asset Survey that is updated on a regular basis, tracks cultural interest and trends. Figure 5-7 shows that in recent years interest and attendance at cultural events has been gradually increasing, and that most funding is provided by private contributions.

State Historic Markers

State Historic Markers are a great way to commemorate sites, individuals, buildings, or events of local, state, or national significance. Without historic markers many sites would simply go unnoticed and would not be enjoyed and appreciated by the general public. Wisconsin has over 470 historic markers in the state, with 5 located in Wood County. Anyone can apply for a marker as long as it addresses a topic of Wisconsin's history. The applicant must

also agree to pay for the cost of the marker, maintain it, and have permission from the property owner where it is located.

The following Wood County markers are included in the Wisconsin Official Historical Markers listing. They are listed in chronological order by date erected.

- Cranberry Culture, Hwy 54, 5 miles West of Port Edwards
- Centralia Pulp and Paper Mill, Hwys 54 & 73, S of city limits of Wisconsin Rapids
- Point Basse, Riverside Park, Hwys 54 & 73, Nekoosa
- Prisoners of War, Wayside No. 4, jct Hwy 10 & Hwy 13
- Founder's Square, West 100 Block of North Central Avenue – corner of Depot and Chestnut Street, Marshfield

Source: *Wisconsin Historical Society, 2007*

Other Historic Markers

Many communities across the state choose to identify places of historic significance in their own way, outside of having them included as a State Historic Marker. In Wood County there are a few cases where markers are erected for the purpose of sharing historic information, but are not included in the state listing of historic markers. The following list is not intended to be a complete listing, but includes the most visible markers in the county.

- Circus Train Crash and Carrier Pigeon, Babcock
- Ed the Strangler Lewis, Nekoosa
- Downtown Wisconsin Rapids Historical Murals, series of 6

Historical Museums

Wood County is home to two museums that are both located in stately historic homes that have been restored. Items and displays at the museum are of local historical significance.

The Upham Mansion is located at 212 West Third Street in the historic district of the city of

Marshfield. The restored mansion is the former home of Wisconsin Governor William Henry Upham, and represents mid-Victorian architecture. Victorian furniture is on display and many of the pieces were made at the Upham Manufacturing Company. Another unique feature of the museum is the rose garden with 32 varieties of beautiful roses.

The South Wood County Museum is located at 540 Third Street in Wisconsin Rapids. The building was erected in 1907 by architect Anton Billmeyer for Issac P. Witter. The property was given to the city in 1947 and served as the T.B. Scott Library for a number of years. In 1970, it became The South Wood County Historical Museum under the direction of the South Wood County Historical Corporation. Some of the

Figure 5-8 Rustic Road Qualification

To qualify for the Rustic Road program, a road:

- should have outstanding natural features along its borders such as rugged terrain, native vegetation, native wildlife, or include open areas with agricultural vistas which singly or in combination uniquely set this road apart from other roads.
- should be a lightly traveled local access road, one which serves the adjacent property owners and those wishing to travel by auto, bicycle, or hiking for purposes of recreational enjoyment of its rustic features.
- should be one not scheduled nor anticipated for major improvements which would change its rustic characteristics.
- should have, preferably, a minimum length of 2 miles and, where feasible, should provide a completed closure or loop, or connect to major highways at both ends of the route.
- A Rustic Road may be dirt, gravel or paved road. It may be one-way or two-way. It may also have bicycle or hiking paths adjacent to or incorporated in the roadway area.

Source: *Wisconsin DOT*

museum exhibits include: schoolhouse, country kitchen, store, antique cranberry harvest equipment, and Grim Natwick exhibit (creator of the Betty Boop character).

Rustic Roads and Scenic Highways

In 1973 the state of Wisconsin established the Rustic Roads program to help citizens and local units of government preserve what is left of the State's scenic, lightly traveled roads. Wood County does not have any stretches of roads that are designated as rustic roads, but there are many miles of rural roads that meet the qualifications of the rustic road designation. The qualifications for rustic roads are identified in table 5-8. Many rural roads in Wood County would likely meet Rustic Road requirements but would require local initiative, support and approval.

The maximum speed limit on a Rustic Road has been established by law at 45 mph. A speed limit as low as 25 mph may be established by the local governing authority.

Yellowstone Trail

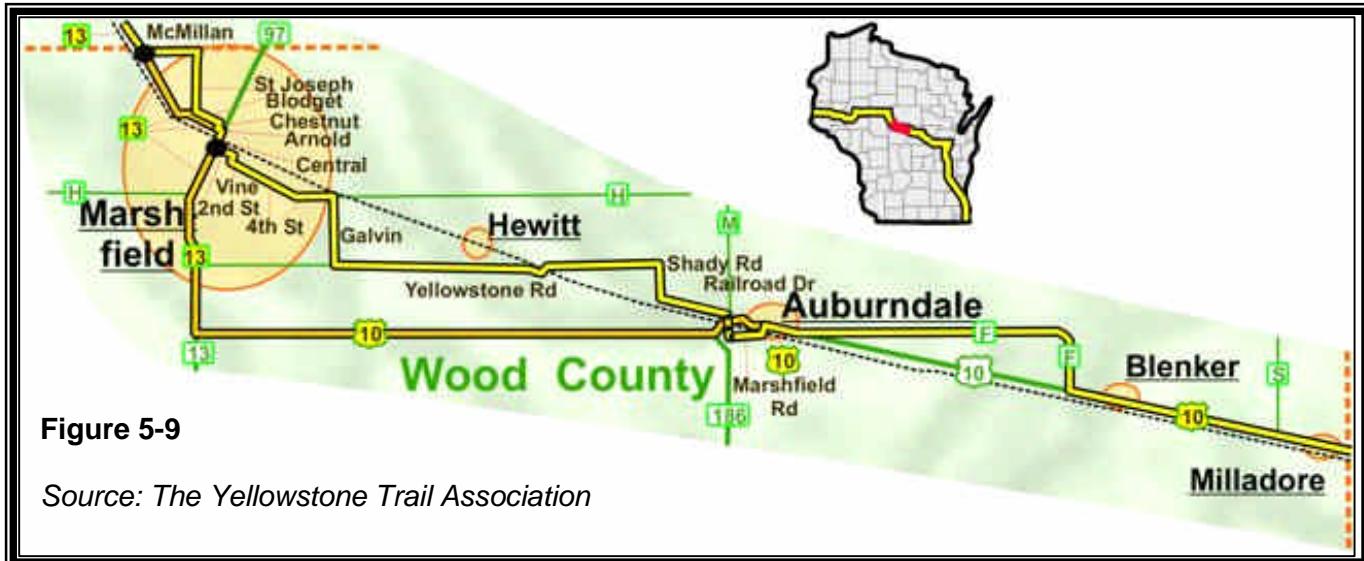
Before there were numbered highways in the

United States there were names attached to roads to help the motorist navigate from town to town or from county to county. In 1912 before the vision of the interstate highway was conceived, a small group of men envisioned a road from Plymouth Rock to Puget Sound and called it the Yellowstone Trail (Figure 5-9).

In Wisconsin the Yellowstone trail ran from Kenosha to Hudson through 18 counties spanning 406 miles. This transcontinental road, one of the first, carrying Tin Lizzies in the early 1900s and Chevys in the 1930s finally faded into a growing network of roads and the interstate system. Although there are many more route choices when traveling today, much of the Yellowstone Trail can still be traveled. More information on the Yellowstone trail can be found at www.yellowstonetrailwi.org

Cranberry Highway

The Cranberry Highway and Cranberry biking trail was started in the late 90's to promote tourism in South Wood County associated with cranberry culture. What first started as a promotional tour, has evolved into a cultural experience where participants can take a self-guided auto drive or bicycle ride on a 50 mile route. Although the tour can be taken any time during the year, the cranberry harvest and



changing colors make the fall season the optimum time of the year to experience it. On the tour there are opportunities to tour cranberry marshes, dine at local establishments, and shop at unique specialty stores that sell items unique to the area. A map of the Cranberry Highway and Cranberry Biking Trail, along with featured stops along the way can be found at the Wisconsin Rapids Area Convention and Visitors Bureau at www.visitwisrapids.com

Historic Sites and Memorials

Rudolph Grotto Shrine

The Rudolph Grotto Shrine is located in the village of Rudolph. The Grotto was started in 1920 by Father Philip Wagner and consists of over five acres of lush gardens, numerous shrines, museum, and a gift shop. It is constructed using rock and broken glass and is set among meandering paths and crooked bridges, with shady, intimate areas for meditation as well as more formal memorials and open picnic grounds.

Historic Point Basse

One of Wood County's most historically significant areas is located on the East side of the Wisconsin River just south of the city of Nekoosa. Point Basse, as the site is called, is the French term for "low point" or "shallows." Prior to development by Robert and Mary Wakely on June 2, 1837, as a trading post, warehouse, inn, and home for themselves, the site marked the crossing point for Native Americans as they made their way on an east and west trail that ran from Lake Poygan to Black River.

Many of the original building at Point Basse have been moved, burned or razed. The only original building is the Wakely home, and other structures have been donated or reconstructed.

Over the years Point Basse has hosted many events that focus on the history of the area and

interpretation of the lives of the eleven Wakely family members that resided there. The site also offers nature education through events and a nature walk and prairie garden. More information on Point Basse and scheduled events can be found at www.historicpointbasse.com.

Wisconsin River Papermaking Museum

The Wisconsin River Papermaking Museum is located at 730 First Ave. South in the city of Wisconsin Rapids. The museum is open to the public and features changing exhibits that focus on paper making over the years. Some exhibits include antique papermaking tools and large wooden papermaking vats from China and Japan.

The Alexander House

The Alexander House is located at 1131 Wisconsin River Drive in the village of Port Edwards. It was founded by the Alexander Charitable Foundation of Port Edwards in 1990. It is named for the late John E. Alexander, who was instrumental in establishing the lumbering and paper industry.

Since opening in 1991 tens of thousands of people have visited the art and history displays. The art displays changes throughout the year and features many local and Midwestern artists. The second floor of the house contains many historic items from the Nekoosa-Edwards Paper Company.

Wisconsin State Firefighter Memorial

The Wisconsin State Firefighters Memorial is located on the southwest side of Wisconsin Rapids, in Ben Hansen Park. The memorial at this scenic location along the Wisconsin River was constructed to pay tribute to the firefighters from the State of Wisconsin who have made the ultimate sacrifice while in service to their communities.

Wood County Veteran's Memorial

The Wood County Veteran's Memorial is located near the courthouse entrance at 400 Market Street. The memorial pays tribute to the veterans that paid the ultimate price in defending the principles and freedoms of the United States of America. Veterans listed by name on the monument served in the following wars: Spanish American; Civil War; World War I; World War II; Vietnam War; Korean War; Gulf War; and Iraq War.

The memorial was established by a volunteer committee that wanted to make sure that all Wood County service men and women who died as a result of combat-related wounds, injuries or causes are not forgotten. Inspiration for the monument comes from the Vietnam Memorial in Washington, D.C., and the Highground in Neillsville, Wisconsin.

Adopted Agricultural, Natural, and Cultural Plans Currently in Place

The following programs pertaining to agricultural, natural and cultural resources are referenced and used to guide current and future use of resources.

Wood County Park, Recreation, and Open Spaces Plan, 2001

The Wood County Park, Recreation and Open Spaces Plan was prepared by the Wood County Planning and Zoning Department and adopted in 2001. The plan represents a comprehensive study of outdoor recreation in Wood County, with a primary emphasis on the role the County is expected to play in meeting demands for outdoor recreation areas and facilities. Several recreational activities that are considered basic to the County's program are discussed at length in terms of supply, demand and need. Following this discussion is a presentation of a program aimed at correcting deficiencies noted during the course of the study, or at making improvements to existing facilities. Secondary emphasis is

placed on those outdoor recreation facilities provided by the Wood County's towns, cities and villages, the role of those facilities, and how they might best serve the users. By keeping the park, recreation and open spaces plan up-to-date, Wood County and city, village and town projects included in the plan are able to participate in the Wisconsin Department of Natural Resources Stewardship Program and other related funding programs.

Wisconsin's Land Legacy Report

In 2006 the State completed the Wisconsin Land Legacy Report. The purpose of the report is to identify the places believed to be most important to meet the state's conservation and recreation needs over the next 50 years. In the report 229 Legacy Places are identified and arranged by 16 ecological landscapes. The first step in the process of identifying these unique places was to develop criteria of what types and characteristics of land and water are believed to be most important in conserving critical natural resources and providing outdoor recreation opportunities. Then using existing data on natural resources, WDNR staff expertise, and input from the public the criteria was applied to identify the Legacy Places presented in the report.

Wood County Land and Water Resource Management Plan, April 2007

The most recent edition of the Wood County Land and Water Resource Management Plan was adopted in April 2007. The plan is updated every 5 years by a locally led process that improves decision-making, streamlines administrative and delivery mechanisms and better utilizes local, state, and federal fund to protect Wisconsin's land and water resources. The plan is written by Wood County Land Conservation Department staff and incorporates public participation and focus group input. The purpose of the plan is to identify and prioritize the major natural resource issues and concerns, develop a coordinated effort to resolve these

issues and concerns, and identify roles of agencies and funding resources to implement the plan. The successful implementation of the plan hinges on the availability of cost-share funding for farmers for the installation of Best Management Practices that protect and conserve our natural resources. Additionally, implementation of the plan requires adequate staff hours to assist farmers in meeting the agricultural performance standards and prohibitions, monitoring, compliance and delivering technical assistance.

Wood County Forest 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. This is a 15-year plan and all management of county forest lands must comply with this plan. It was updated in 2007 and is scheduled to be updated in 2022.

Trends

By looking at agricultural, natural, and cultural resource trends we can get an idea of some of the opportunities and challenges that Wood County will face in the future. The goals and objectives of this element as well as other

elements directly address some of these trends, and other trends are listed to create awareness. The trends for this element are listed in Figure 5-9.

Figure 5-9 Trends

Cultural and Historical Resource Trends

1. Recognized value of historic resources will grow leading to increased preservation efforts.
2. Recognized value of cultural resources will grow leading to increased awareness and promotion of cultural identity.
3. Over time historical resources will emerge based on a variety of factors that make them unique and worth preserving for Wood County Communities.
4. Attendance at cultural events will continue to gradually increase in the future.
5. The number of cultural events will continue to increase in the future.

Figure 5-9 Trends - Continued

Agricultural Resource Trends

1. Availability of Agricultural Lands will decrease.
2. We will continue to see fragmentation of agricultural lands.
3. Rural development will increase the instances of conflicts between agricultural and residential land uses.
4. Average size of farms will continue to increase.
5. Dairy herd size will continue to increase.
6. There will be an increased interest in specialty farming.
7. There will be an increased interest in organic farming.
8. There will be an increase in Community-Supported Agriculture (CSA).
9. There will be an increase in subsistence farming practices.
10. There will be more issues related to quality and quantity of water resources for agricultural practices.
11. There will be an increasing number of large dairies that are required to obtain WPDES permits.
12. Agricultural lands will see more opportunities to generate revenue from wind power and cell tower.

Natural Resource Trends, Wood County Forest Lands

1. Greater demands are being placed on the forest by competing recreational pursuits.
2. Demand for timber products are predicted to increase.
3. Forest succession is changing the species of the trees and also affecting conditions for the wildlife species.
4. There will be an increase in conflict over timber management practices as more individuals and groups are involved in forestry decisions.
5. There will likely be more reliance on timber sales to generate revenue as municipalities struggle to provide more services with less money.
6. Increased knowledge of species and their habitat is leading to a growing list of threatened and endangered species. This could lead to improvements in management practices that impede the recreational and forest management practices.
7. The County Forest is increasingly being perceived as an outdoor classroom for the benefit of all age groups.

Natural Resource Trends

1. Water quality and quantity issues will continue to increase.
2. Interest in hunting will continue to decrease with generational loss and access issues.
3. Interest in fishing will remain stable and is popular with all generations.
4. Large blocks of forest lands that are managed for timber harvest and open to the public for recreation will decrease.
5. Demands on natural resources will continue to change as recreation trends change.
6. There will be more encroachment of wetlands for development and access purposes.
7. Conflicts between property owners and wildlife will increase as animals adapt to living in developed areas, and more rural areas are developed.
8. Demand for sand and gravel resources will continue.
9. Management of invasive species will become increasingly important and complex.
10. Waterfront property will continue to receive development pressure.
11. Control of wildlife population will continue to be a management issue.
12. Accurate delineation of floodplain boundaries based on accurate elevation information will continue to be a requirement for properties adjacent to water bodies or located in flood prone areas.
13. Decisions to manage natural areas for seasonal recreation activities will consider the milder winters that we are having.
14. The interest in using water features for recreation will continue to increase and trips for family and personal business continue to increase.

Goals and Objectives

Agricultural Resources

A. Goal: Maintain prime farmland for future agricultural use.

1. Direct housing development in rural areas where adverse impacts to agricultural practices are minimized.
2. Encourage rural communities to develop comprehensive plans that involve the public and identify future land use.
3. Encourage participation in programs of the Wisconsin Working Lands Initiative that promote farmland preservation.

B. Goal: Reduce Crop Damage Caused by Wildlife

1. Administer Wildlife Damage Abatement and Claims Program.
2. Work with the Department of Natural Resources on programs to control excessive populations of wildlife.

Natural Resources

D. Goal: Protect natural areas and environments including air, wetlands, wildlife, lakes, woodlands, open spaces, and groundwater resources Increase and protect wetlands and wildlife habitat.

1. Provide property owners with resources to determine the location of wetlands and other environmentally sensitive areas on their property.
2. Educate public officials and the general public on the importance of wetlands resources as they relate to wildlife habitat.
3. Encourage local units of government to identify and maintain the habitats of animals, plants, and natural communities of special concern, endangered or threatened in the Wisconsin Natural Heritage Inventory (NHI) in their area.
4. Encourage large blocks of habitat to be maintained whenever possible.

5. Protect portions of unique natural areas for wildlife habitat, passive enjoyment and scientific study.
6. Update the Wood County Forest Comprehensive Land Use Plan on a regular basis.
7. Encourage local units of government to identify and support the protection of sensitive wildlife habitat.
8. Reduce wind erosion from cropland fields.
9. Educate residents on ways they can contribute to improved air quality.
10. Promote clean energy sources in the Region.

E. Goal: Protect the quantity and quality of lakes, rivers, streams and groundwater.

1. Reduce erosion and sediment delivery from cropland fields and animal waste storage facilities.
2. Reduce erosion and sediment delivery from non-cropland areas and construction sites.
3. Encourage lake or river protection plans. Utilize grants from the WDNR and other sources to fund protection and restoration of Wisconsin waters.
4. Promote proper well abandonment.
5. Update the Wood County Land and Water Resource Management Plan on a regular basis.
6. Increase water quality monitoring on Wood County streams and other surface waters.
7. Increase water quality monitoring for groundwater resources in Wood County.
8. Educate residents that have private wells on the importance of regular water quality testing.
9. Continue to administer the following Wood County Ordinances
 - a. Wood County Private Sewage Ordinance #702
 - b. Wood County Shoreland Zoning Ordinance #704
 - c. Wood County Animal Waste Storage Ordinance #801

F. Goal: Maintain the quality and availability of outdoor recreation opportunities in the County.

1. Update the County Parks, Recreation and Open Spaces Plan every 5 years.
2. Encourage local units of government to develop or update outdoor recreation plans to identify public park and recreational needs.

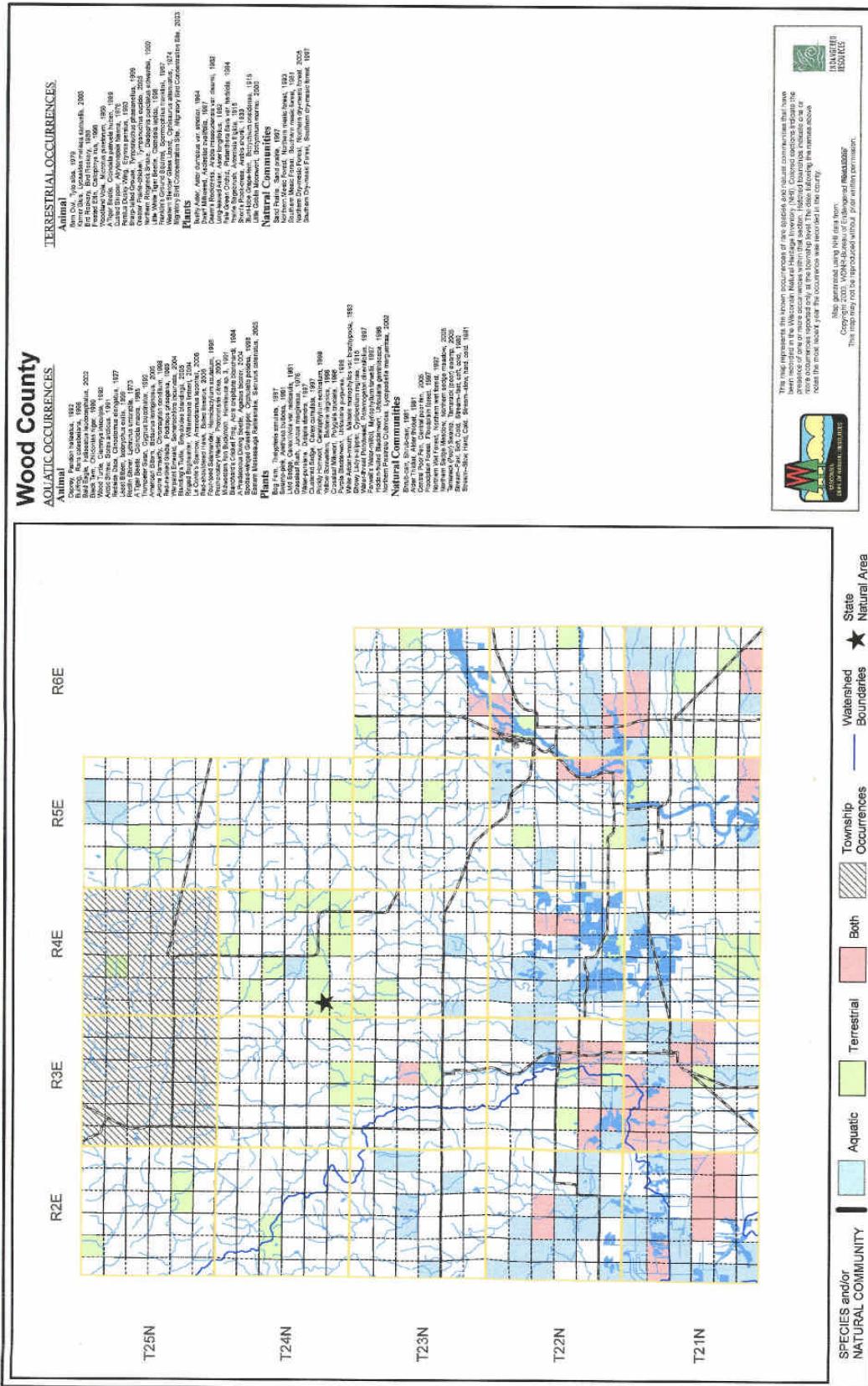
Cultural and Historical Resources

G. Goal: Preserve historically significant buildings and features and locations in Wood County.

1. Coordinate and improve efforts to identify, evaluate, and protect significant historic resources.
2. Encourage appropriate management and maintenance of historic resources.
3. Increase public awareness of the unique history of the area.
4. Consider the impacts of land use changes on historic resources.

H. Goal: Continue to offer a variety of cultural opportunities to County residents and visitors through a variety of organizations and programs.

1. Increase public awareness of the value and role of cultural events to the quality of life in the area.
2. Cultivate an environment where a diverse offering of cultural resources is made possible by many volunteer organizations utilizing volunteer efforts and private donations.



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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 Services 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 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. Grassland Reserve Program(GRP)

Provides incentives to manage permanent pasture and hay land. This program is administered by NRCS and FSA.

5. Wetland Reserve Program (WRP)

A FSA and NRCS administered program that provides cost-share assistance to restore converted wetlands from agricultural use.

6. Partners for Fish and Wildlife Service 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.

State Programs

1. Targeted Resource Management Program (TRM)

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.

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 DATCP.

3. Lake Management and Planning Grants

Funds provided by WDNR to protect and improve water quality in Wisconsin lakes.

4. Managed Forest Law (MFL)

Appendix 5-B

Provides a tax incentive to landowners who manage their woodlots in accordance with an approved timber management plan.

5. Agricultural Clean Sweep

Provide funding to local units of government to implement a program for collecting unwanted hazardous wastes.

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 review and approves reclamation plans for compliances with state laws and recommends erosion control practices to mining operators.

3. Wood County Shoreland Zoning Ordinance

Administered by the Wood County Planning and Zoning Department. Regulates 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.

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.

Powers Bluff Maple Woods

State Natural Area (No. 131)

Location: Within Powers Bluff County Park, Wood County. T24N-R4E, Sections 29, 30 E½SE¼. 70 acres.

Access: From the intersection of County Highways N and E on the west side of Arpin, go south on E 1 mile, then west on Bluff Drive 1.1 miles to the entrance to Powers Bluff County Park. The natural area covers the eastern portion of the park.

Description: Powers Bluff Maple Woods features a mature southern mesic forest perched on a 300 foot high monadnock, an isolated remnant hill made of erosion resistant quartzite. The 1.6 billion-year-old bluff is round-shaped due to the durability of the quartzite, which has resisted erosion. This contrasts with other less durable sandstone bluffs in the area that have weathered parallel to their vertical planes giving them very steep slopes. Dominant trees are sugar maple, yellow birch, and bitternut hickory with scattered red oak, white ash, and basswood. The understory is quite open and there is little herbaceous groundcover due to the low light levels. Some common species include plantain-leaved sedge, blue cohosh, maidenhair fern, and bloodroot. The forest floor is strewn with boulders and two boulder trains extend southeast and southwest from the bluff suggesting that glacial ice moved over and around the bluff from at least two different directions. On the south end are quartzite outcrops with columbine and common polypody fern. Also present is little goblin moonwort (*Botrychium mormo*), a Wisconsin endangered plant. This tiny fern is associated with nutrient rich sites and sometimes does not appear above the leaf litter of the forest floor. Birds found are typical mesic forest species including least flycatcher, eastern wood pewee, red-eyed vireo, ovenbird, and scarlet tanager. The site may still harbor the rare woodland vole (*Microtus pinetorum*), which was present here in the past. Powers Bluff Maple Woods is owned by Wood County and was designated a State Natural Area in 1976.

Mead Conifer Bogs

State Natural Area (No. 373)

Location: Within George Mead Wildlife Area. Wood, Portage, and Marathon Counties.

East Unit: T25N-R6E, Sections 5, 6, 7. T26N-R6E, Sections 31, 32. West Unit: T25N-R5E, Sections 2, 3, 10. 932 acres.

Access: From the junction of Highway 10 and S in Milladore, go north on S 6.2 miles to the Wildlife Management Area Headquarters. Get a map and directions to the sites. Three parking areas provide access. To access the western portion: From the headquarters, go south on S 0.8 mile to a parking area on the west side of the road. For the eastern portion: Go south on S 0.75, then east on County Line Road about 0.8 mile to a parking area at the end. Alternatively, go south 2.75 miles, then east on H 2 miles, then north on Plum Lane to a parking area at the end of the road.

Description: Mead Conifer Bogs are extensive areas containing northern wet forest dominated by black spruce and tamarack. Both species are reproducing well. The center

of the tract is dominated by black spruce, which is gradually replaced by larger tamaracks at the perimeter. The groundcover is a firm carpet of sphagnum moss dominated by leather-leaf and cotton-grass. Poison sumac is abundant. Other species include bog birch, bog-rosemary, Labrador-tea, blueberry, bogbean, yellow blue-bead-lily, bogbean, pitcher plant, bunchberry, Canada mayflower, and royal, cinnamon, and interrupted fern. Alder-dogwood shrub-carr dominates on the eastern edge near the uplands. Animal life includes bog lemming, Sandhill crane, American redstart, common yellowthroat, and Nashville warbler. Also present is the northern harrier (*Circus cyaneus*), a species that requires large expanses of open habitat. Mead Conifer Bogs is owned by the DNR and was designated a State Natural Area in 2002.

Owl Creek Fen Savanna

State Natural Area (No. 521)

Location: Within the Wood County Forest. T22N-R3E, Sections 12, 13, 14. T22N-R4E, Sections 7, 18. 814 acres.

Access: No direct access. From the intersection of Highway 80 and Main Street in Pittsville, go east on Main Street (Lincoln Road) 3.1 miles, then south on Hemlock Road 1.5 miles. Park where the road turns east. Walk southwest 1.3 miles into the site.

Description: Owl Creek Fen Savanna is a large peatland complex that supports a diversity of natural features including central poor fen, tamarack swamp, alder thicket, and upland islands of pine and oak. Of note are unique savanna-like stands of open-grown aspen situated in a wet meadow dominated by blue-joint grass. Central Poor Fens are acidic, low nutrient wetlands dominated by sedges including *Carex oligosperma*, *C. lanuginosa*, and *C. utriculata*. Found within the Central Sand Plains of Wisconsin, they often intergrade with Tamarack Swamp. Other characteristic species include three-way sedge, fowl manna grass, swamp-candles, cotton-grass, bog goldenrod, swamp milkweed, bulblet water hemlock, and blue-flag iris. Birds include sandhill crane, purple finch, black-and-white warbler, and golden-winged warbler. Owl Creek Fen Savanna is owned by Wood County and was designated a State Natural Area in 2006.

Skunk Creek Woods

State Natural Area (No. 522)

Location: Within the Wood County Forest. T22N-R2E, Sections 15, 16. 66 acres.

Access: From the intersection of Highways 80 and 54 in Dexterville, go west on 54 5.8 miles, then continue west on Peterson Road 1.4 miles and park (near where the road turns south). Walk north into the site. The woods are west of Skunk Creek.

Description: Skunk Creek Woods features a northern dry-mesic forest situated within a large expansive peatland. Medium to large red oak and white pine dominate the canopy. Associated trees include white oak, black cherry, mountain ash, and paper birch. Yellow birch, sugar maple, red maple, and eastern hop-hornbeam are also present. Common shrubs are huckleberry, northern bush-honeysuckle, American fly-honeysuckle, maple-leaved viburnum, and sweet fern. The groundlayer contains many dry-mesic associated species. Plants noted include wild columbine, wild sarsaparilla, big-leaf aster, three-leaved goldthread, Canada bunchberry, wild strawberry, American starflower, partridgeberry, naked miterwort, round-leaved shin-leaf, rosy twisted stalk, Canada

mayflower, and nodding trillium. Breeding birds include broad-winged hawk, black-billed cuckoo, red-headed woodpecker, pileated woodpecker, great-crested flycatcher, yellow-throated vireo, black-throated green warbler, pine warbler, ovenbird, and scarlet tanager. Rare and uncommon species found here include the state-threatened red-shouldered hawk (*Buteo lineatus*), golden-winged warbler (*Vermivora chrysoptera*), and the four-toed salamander (*Hemidactylum scutatum*). Skunk Creek Woods is owned by Wood County and was designated a State Natural Area in 2007.

Red Oak Bottoms

State Natural Area (No. 523)

Location: Within the Wood County Forest. T22N-R4E, Section 17. 25 acres.

Access: No direct public access. From the intersection of Highway 80 and 54 nearly one mile south of Dexterville, go east on 54 4.4 miles, then north on Hemlock Trail 1.6 miles to the railroad tracks. Walk west 1.2 miles to Hemlock Creek. Walk north into the site.

Description: Situated along Hemlock Creek, Red Oak Bottoms supports an old-growth floodplain forest, which contains an unusual abundance of red oak in the canopy. While large floodplain forests occasionally have a red oak component, it is quite unique to have red oak co-dominant in these situations. Along with silver maple, this one and three-quarter mile reach of the creek supports basswood and some swamp white oak. The 35-mile Hemlock Creek is a soft-water stream that flows in a southerly direction and joins the Yellow River south of Babcock. Sand, gravel, and rubble are the dominant bottom types, but boulders, bedrock, and silt are also present. Fish include walleye, northern pike, bluegill, rock bass, bullheads, perch, and pumpkinseed. Migrating ducks use the creek and mallard, teal, and wood ducks nest along the stream. The large maple and red oaks provide important habitat for the state-threatened red-shouldered hawk (*Buteo lineatus*) and numerous cavities offer nesting sites for prothonotary warblers and brown creepers. Red Oak Bottoms is owned by Wood County and was designated a State Natural Area in 2007.

Hiles Wetlands

State Natural Area (No. 524)

Location: Within the Wood County Forest. T22N-R2E, Sections 8, 9, 15-17, 20-22. 561 acres.

Access: From the intersection of Highways 80 and 54 in Dexterville, go west on 54 5.8 miles, then continue west on Peterson Road 1.3 miles and park. Follow Skunk Creek south into the site. Or continue west on Peterson Road another 0.4 miles to a small turnaround. Park and walk west into the site.

Description: Hiles Wetlands is a large complex of tamarack poor fen and sedge meadow, which have seen relatively little human disturbance as compared with other similar community types in this area. The wet meadow contains an abundance of blue-joint grass, manna grass, and prairie cord grass. Other species include swamp milkweed, boneset, spotted Joe-Pye-weed, northern bugleweed, sensitive fern, wool-grass, and grass-leaved goldenrod. The wilderness aspect of this site adds to its ecological

significance. Hiles Wetlands is owned by Wood County and was designated a State Natural Area in 2006.