

6. AGRICULTURAL, NATURAL AND CULTURAL RESOURCES

This chapter presents information on resources that impact the quality of life and play an important role in defining the character of Pepin County. Pepin County’s rich agricultural, natural and cultural resources base is vital to the County’s economy and residents’ quality of life. Sustaining the resources will be a challenge, but the goals and strategies identified in this chapter will assist in preserving, protecting and enhancing the resources.

AGRICULTURAL, NATURAL AND CULTURAL RESOURCES EXISTING CONDITIONS AND RESOURCES

Western Coulee and Ridges

Pepin County lies within the Western Coulee and Ridges Ecological Landscape (see map on right). This landscape runs north and south along the Mississippi River from the south in Grant and Iowa Counties to the north in Dunn, Barron and Chippewa Counties. Its 9,640 square miles cover 17% of Wisconsin’s land area. It is characterized by highly eroded non-glaciated topography. Its steep sided valleys are heavily forested with hardwoods. Agricultural activities, primarily dairy and beef farming are confined to the valley floors and ridge tops. Large and small meandering rivers and streams are also a characteristic. Brown and Brook trout are common in the spring fed and cold-water streams. Soils are typically silt loams, and sandy loams in the uplands and alluvial or terrace deposits on the valley floors. Map 6.01 illustrates the elevation changes in the County highlighting the coulees and ridges.



Groundwater

The State’s groundwater reserves are held in four principal aquifers: the sand and gravel aquifer, the eastern dolomite aquifer, the sandstone and dolomite aquifer, and the crystalline bedrock aquifer. A layer of rock or soil that is capable of storing, transmitting and yielding water to wells is called an aquifer. Pepin County is located in the Cambrian-Ordovician (sandstone) aquifer system. Cambrian and Ordovician rocks form the bedrock surface in the southern two-thirds of Wisconsin. The hydrogeological unit that serves Pepin County is the Ironton – Galesville aquifer that serves primarily southeastern Minnesota; northern Iowa; southwestern, southern and eastern Wisconsin; and the Upper Peninsula of Michigan. This information was taken from the Groundwater Atlas of the U.S. for Iowa, Michigan, Minnesota and Wisconsin - Groundwater Atlas of the United States, U.S. Geological Survey.

In 2005, industrial use was the largest user of groundwater in Pepin County. This followed by in order of amount of use: irrigation; livestock; domestic; public use; and commercial. Between 1979 - 2005 total water use in Pepin County fluctuated from 1.2 million to 3.0 million gallons per day. Table 6.01 below, shows total water use in the County for the years 1979, 1985, 1990, 1995, 2000 and 2005. Of special note is that according to the 2007 Census of Agriculture, in 2002 there were 8 farms in Pepin County irrigating 609 acres. These numbers increased to 18 farms irrigating 1,470 acres in 2007. In the 2012 Census of Agriculture, the numbers jumped to 32 farms irrigating 3,583 acres.

Table 6.01 Pepin County Water Use by Year (Millions of gallons per day)

	1979	1985	1990	1995	2000	2005
Surface-water use	0.02	0.02	0.04	0.03	0.03	1.38
Groundwater use	1.19	1.60	2.00	1.20	2.10	1.67
Total Water Use	1.21	1.62	2.04	1.23	2.13	3.05

Source: *Protecting Groundwater in Wisconsin through Comprehensive Planning*, <http://wi.water.usgs.gov/gwcomp/index.html>

Pepin County has 2 municipal water systems; these are the Village of Pepin Waterworks and the City of Durand Waterworks. As of January 2008, the City of Durand had both a wellhead protection program and a wellhead protection ordinance in place. Wellhead protection plans are developed to protect groundwater through pollution prevention measures.

Pepin County has an animal waste management ordinance to protect groundwater and surface water resources. There are two concentrated animal feeding operation (CAFO) in Pepin County. CAFO's have greater than 1,000 animal units. There are also no licensed landfills or Superfund sites in Pepin County.

From 1990-2006 81% of 59 private wells sampled collected in Pepin County met the health based drinking water level for nitrate-nitrogen. In 2002, a study estimated that 52% of private drinking wells in the region of Wisconsin that includes Pepin County contained a detectable level of an herbicide or herbicide metabolite. As of 2006, there are 102 atrazine prohibition areas in Wisconsin, covering about 1.2 million acres. Atrazine is a corn herbicide used to control weeds in corn fields. There are no atrazine prohibition areas in Pepin County.

Forests

County forests and woodlands provide valuable economic and social resources through the lumber & pulp industries and the provision of recreation areas for residents and tourists.

Quality forests provide materials for wood processing industries. According to the Pepin County Land and Water Resource Management Plan Summary (2011) one third of the land area in Pepin County is wooded. Some woodlots, however, are pastured due to use value assessment giving landowners a tax incentive to graze. These woodlots are classed as agricultural lands on the Department of Revenue Statement of Assessments. Table 6.02 below gives a breakdown of Ag/Forest and Forest acres listed in the 2015 Department of Revenue Statement of Assessments.

Of the County's 121,541 acres assessed in 2015, 28,439 acres or 23.4% were assessed as Forest or Ag/Forest. The Towns of Pepin, Waterville, Albany and Frankfort recorded the highest percentages of their acreage assessed as either Forest or Forest/Ag, Table 6.02

Table 6.02 2015 Statement of Assessment - Pepin County Forest & Ag Forest Acres

Municipality	Total acreage within municipality	Ag Forest		Forest		Total	
		No. of Acres	% Land Use	No. of Acres	% Land Use	No. of Acres	% Land Use
T Albany	20,753	3,142	2.6	1,341	1.1	4,483	3.7
T Durand	10,175	2,366	1.9	577	0.5	2,943	2.4
T Frankfort	14,523	3,619	3.0	529	0.4	4,148	3.4
T Lima	20,874	2,337	1.9	489	0.4	2,826	2.3
T Pepin	21,221	4,066	3.3	1,789	1.5	5,855	4.8
T Stockholm	8,072	1,337	1.1	422	0.3	1,759	1.4
T Waterville	19,473	3,330	2.7	1,120	0.9	4,450	3.7
T Waubeek	5,650	927	0.8	764	0.6	1,691	1.4
V Pepin	128	0	0.0	19	0.0	19	0.0
V Stockholm	397	0	0.0	249	0.2	249	0.2
C Durand	275	13	0.0	3	0.0	16	0.0
Pepin County	121,541	21,137	17.4	7,302	6.0	28,439	23.4

“Productive forest land” means land that is producing or is capable of producing commercial forest products.

“Agricultural forest land” means land that is producing or is capable of producing commercial forest products, if the land satisfies any of the following conditions:

- a. It is contiguous to a parcel that has been classified in whole as agricultural land under this subsection, if the contiguous parcel is owned by the same person that owns the land that is producing or is capable of producing commercial forest products. In this subdivision, “contiguous” includes separated only by a road.
- b. It is located on a parcel that contains land that is classified as agricultural land in the property tax assessment on 1/1/2004, and on January 1 of the year of assessment.
- c. It is located on a parcel at least 50 percent of which, by acreage, was converted to land that is classified as agricultural land in the property tax assessment on 1/1/2005, or thereafter.

Source: Wis. Dept. of Revenue, 2015 Statement of Assessments

Wisconsin's forest tax laws encourage sustainable forest management on private lands by providing a property tax incentive to landowners. The Managed Forest Law (MFL) is a program that encourages proper management of woodlands not only in their purposes and policies, but through a written management plan for a landowner's property. The management plan incorporates landowner objectives, timber management, wildlife management, water quality and the environment as a whole to create a healthy and productive forest. In exchange for following a written management plan and program rules, landowners pay forest tax law program rates in lieu of regular property taxes.

Landowners in the County owning forest acres may be eligible to apply for entry into the State's Managed Forest Law (MFL) Program if their forest acres are: 10 or more contiguous acres; at least 80% of the parcel is capable of producing at least 20 cubic feet of merchantable timber per acre per year; and the land is not developed in a way incompatible with the practice of forestry. Landowners must also follow a forest management plan. More information on the MFL program can be found on the DNR's website at: <http://dnr.wi.gov/topic/ForestLandowners/mfl.asp?s1=FTax&s2=MFLenrollment>. As of March 2016 the County had 20,343 acres enrolled in this program. Table 6.03 gives a breakdown of MFL acreage by municipality.

Table 6.03 Managed Forest law Acres - Pepin County (March 2016)

Municipality	No. of Orders	Entered 1987 - 2004		Entered 2005 and After		Total Acres
		Open Acres	Closed Acres	Open Acres	Closed Acres	
T. Albany	47	0	1,734	0	711	2,445
T. Durand	23	0	1,030	33	137	1,200
T. Frankfort	82	143	2,703	0	894	3,740
T. Lima	38	213	1,294	0	574	2,081
T. Pepin	119	375	3,174	47	2,439	6,035
T. Stockholm	29	166	650	40	269	1,125
T. Waterville	62	245	1,868	40	383	2,535
T. Waubeek	14	207	645	40	252	1,144
V. Stockholm	1	0	0	0	38	38
County Total	415	1,787	13,098	200	3,976	20,343

Open Land access is limited to hunting, fishing, hiking, sight-seeing, and cross country skiing. Closed acres are not open to the public.

County Forests, Wildlife Areas and State Natural Areas

No state or county forests are located within Pepin County; however the County is home to three wildlife areas and three State Natural areas, all of which are open to the public year round unless otherwise noted at the site. Collecting of plants, animals, fungi, rocks, minerals, fossils, archaeological artifacts, soil, downed wood, or any other natural material, alive or dead is not permitted [in these](#) areas. However fishing, trapping, and hunting are allowed in accordance with state regulations.

1. Tiffany Wildlife Area - Stretching from west side of the Chippewa River opposite Durand on the north, to the mouth of the Chippewa River on the south, this large bottomland and marsh area covers both sides of the Chippewa River in Pepin and Buffalo Counties. The 3,900 acres of state land in Pepin County includes wooded coulees and steep bluffs as well as flood plain forest and open marsh. The 8,300 acres of state land in Buffalo County is mostly flood plain forest and marsh. Most of the immediate river influenced area is in state ownership although there is more private land interspersed on the Pepin County side of the River. This outdoor natural area offers opportunities for hunting, fishing, trapping, wilderness camping, boating, and hiking to many citizens and visitors. The area is managed by the Department of Natural Resources and is one of the most outstanding natural semi-wilderness areas in the state. Much of this wooded hillside, wooded bottomland, and bluff top area was purchased from the Tiffany Lumber Co. in 1946. The U.S. Department of the Interior National Park Service has designated a portion of the Tiffany property in Buffalo County, and the adjacent federal Fish and Wildlife Service property, as a National Natural Landmark because it is the largest single stand of bottom land hardwood forest remaining of the post-glacial forest in the U.S.
2. Pepin County Extensive Wildlife Habitat Area - This property currently consists of four non-contiguous parcels totaling approximately 293 acres of state land along the Mississippi River, within the Village of Stockholm, and south of the

village in the Town of Stockholm. The parcels were originally purchased to develop a state park. The park would have included the remnants of the site of Fort St. Antoine, circa 1686, and Bogus Bluff, one mile southeast of Stockholm, which provides a scenic overlook for those who make the climb to the top. The old fort site was not acquired, but the south and part of the west face of Bogus Bluff are in state ownership. This park development never was formalized, but the availability of state land provides informal hiking and hunting opportunities to citizens. Outdoor uses such as hiking, hunting, and camping; could be developed. For beginning development a small formal parking area and a hiking trail to the top of Bogus Bluff could be built.

3. Five-Mile Bluff Prairie - This 10-acre site is located within the Tiffany Wildlife Area. The Prairie sits on 300 foot high bluffs overlooking the Chippewa and Mississippi Rivers and was designated a State Natural Area in 1969. It is an excellent example of a dry prairie. The site contains three small patches of dry, steep-sloped prairie near the top of the bluff, which are otherwise forested.
4. Nine-Mile Island State Natural Area - Nine Mile Island State Natural Area contains 4,130 acres and is located in Dunn and Pepin Counties. Approximately 714 of these acres are located in the Town of Waubeek adjacent to Dunn County. The area is located within an extensive river ecosystem that includes the Chippewa River and Nine Mile Slough and features two high quality native plant communities – oak barrens and floodplain forest. The area has been identified as having an exceptionally diverse flora with a number of rare species including the largest population of the state-endangered beak grass. Nine Mile Island was designated a State Natural Area in 1990. The main portion of the natural area is accessible by canoe.

5. Maiden Rock Bluff Natural Area- This is a 248-acre site located high above the Mississippi River overlooking Lake Pepin in the Town of Stockholm, north of the Village of Stockholm. It is one of Wisconsin's premiere limestone cliff faces. Extending for nearly one mile, the 400-foot high bluff is especially noteworthy for the presence of nesting Peregrine falcons, a state-endangered species. The bluff is one of only six bluffs on the Mississippi River where Peregrine falcons are successfully nesting on natural substrate. The open cliff and adjacent narrow band of dry prairie provide habitat for several rare plant species. The rocky bluff provides hunting perches and habitat for a variety of other raptors including the golden eagle, bald eagle and turkey vulture. Maiden Rock Bluff Natural Area also provides important habitat for birds migrating along the Mississippi River flyway. This natural area is owned by the West Wisconsin Land Trust and was designated a State Natural Area in 2004. The surrounding uplands including existing agricultural fields will be restored to prairie with skiing and hiking trails for the public.



Maiden Rock Bluff

6. Lower Chippewa River State Natural Area - The Lower Chippewa River State Natural Area is located in Buffalo, Dunn and Pepin Counties and was designated a State Natural Area by the DNR in 2002. The State Natural Area is made up of lands scattered throughout a project area of 250,000 acres. State Natural Area signs will identify specific sites, or contact the DNR and request the locations of sites accessible to the public. From Durand sites lie both north and south along the Chippewa River. This natural area features the largest concentration of remaining prairies and savannas in the state. At the time of European settlement Wisconsin had over 7.7 million acres of native prairie but today only about 8,000 acres remain. This extensive project contains over 2,000 acres of prairie, which equals 25% of all known remaining prairie in the entire state. Lying along and interspersed within the river channels are islands of floodplain savanna and forest while the surrounding hillsides contain prairie and savanna. The largest contiguous floodplain forest in the Midwest is located just south of Durand within this natural area.

Productive Agricultural Areas

Pepin County has areas of prime agricultural land that produce forage, corn, soybeans, oats and other crops. In 2007 Pepin County had 503 farms averaging 216 acres in size covering a total of 108,426 acres. Of these acres 62.3% was cropland, 13.7% woodland, 3.2% pasture and 20.8% other uses. Agricultural land makes up over 89 percent of all land in Pepin County. Map 6.02 identifies the location of prime agricultural soils within Pepin County.



Productive agricultural land in Pepin County

Of the 503 farms in 2007, 121 had less than 100 acres, 82 had 100-219 acres, 100 had 220-499 acres and 46 had 500 acres or larger.

As Table 6.04 illustrates the number of farms in Pepin County increased by 2 from 2002 to 2007, however acreage in farms decreased slightly, and the average size of farms in the County decreased by 2.7%. The 2012 Census of Agriculture shows that the number of farms in Pepin County as well as the number of acres in production is decreasing, although size of farm and profitability is increasing.

Table 6.04 Agricultural Profile, 2002, 2007, 2012

	2002	2007	2012	Percent Change (02-07)	Percent Change (07-12)
Number of Farms in Pepin County	501	503	459	0.4	-8.7
Land in Farms (acres)	111,313	108,426	103,604	-2.6	-4.4
Average Size of Farm	222	216	226	-2.7	4.6
Market Value of Production (Crops/Livestock)	34,785,000	53,215,000	71,736,000	53.0	34.8
Market Value of Production (Average per Farm)	69,431	105,795	156,288	52.4	47.7
Government Payments	1,559,000	1,539,000	1,966,000	-1.3	27.7

Source: 2002, 2007 and 2012 Census of Agriculture, USDA, Wis. Agricultural Statistics Service

Table 6.05 below shows acreage and production amounts of selected agricultural crops in the County for 2009 and 2010. Production increased for soybeans, corn for grain and corn for silage from 2009 to 2010, while hay alfalfa and oats declined. Production of corn for silage increased by 27%, soybeans increased by almost 17% and corn for grain increased by almost 8%. Production of oats declined by over 41% and hay alfalfa decreased by less than 1%. Acres planted decreased for hay alfalfa, oats and corn for silage while acres planted increased for soybeans and corn for grain from 2009 to 2010. One item of interest is that while acres planted of corn for silage decreased by 6.5% the production increased 27%.

Table 6.05 Pepin County Crop Production 2005 and 2006

	2009		2010		% Change Acres	% Change Production
	Acres Harvested	Production tons ⁽¹⁾ and bushels ⁽²⁾	Acres Harvested	Yield per Acre tons ⁽¹⁾ and bushels ⁽²⁾		
Hay Alfalfa (dry) ⁽¹⁾	10,300	26,500	8,000	26,400	-22.3	-0.4
Oats ⁽²⁾	1,300	89,000	1,000	52,000	-23.1	-41.6
Soybeans ⁽²⁾	12,300	504,000	12,600	588,000	2.4	16.7
Corn for Grain ⁽²⁾	23,800	3,780,000	24,600	4,070,000	3.4	7.7
Corn for Silage ⁽¹⁾	4,600	74,000	4,300	94,000	-6.5	27.0

Source: Wisconsin 2011 Agricultural Statistics

Farmland Tax Credits

Beginning in 1989, Wisconsin provided tax credits to farmers through both the Farmland Preservation Program and the Farmland Tax Relief Program. The Farmland Preservation Program, established in 1977, was aimed at the conservation of Wisconsin farmland and providing tax relief. The Farmland Tax Relief Credit was created in 1989 to provide additional tax relief to owners of farmland. Farmland owners were eligible to claim both credits.

Beginning with payments in 2011 (for 2010 tax year), the Farmland Preservation Credit was revised and expanded and the Farmland Tax Relief Credit was eliminated. Depending on the particular situation, a farmer could claim a farmland preservation credit beginning in 2011 (for tax years beginning with 2010) under the old law or under the new revised law. However, a credit may not be claimed on the same farm acreage using both.

Under the revisions to the Farmland Preservation Program, a credit can still be claimed under the old law if, among other considerations, the claimant remains subject to a farmland preservation agreement that was entered into prior to July 1, 2009. Alternatively, a credit can be claimed under the new law by a person who owns a farm that is covered by a farmland preservation agreement entered into on or after July 1, 2009 or owns a farm located in an area designated in a certified exclusive agricultural use zoning or farmland preservation zoning ordinance.

One of the major differences between the credit under the old law and the credit under the new law is that under the old law the credit is partially determined by the claimant’s household income and property taxes. In addition, the maximum credit allowed under the old law is \$4,200. In calculating the credit under the new law, neither income nor property taxes impact the amount of the credit. The new law credit is, instead, calculated as a flat payment of \$5, \$7.50, or \$10 per acre, depending on the characteristics of the qualifying farmland. In addition, no limitation is placed on the amount of the credit that may be received under the new law.

In 2012, approximately 4,400 farmers in Wisconsin received \$3.4 million in farmland preservation credits under the old law and about 10,800 farmers received \$15.5 million under the new version of the credit. In total, in 2012 almost \$19 million in farmland preservation credits were distributed to about 15,200 claimants for farmland covering just over 2.8 million acres. In Pepin County for 2012, twenty five farmers received \$16,426 covering 6,022 acres under the old law and had fewer than 5 farmers receiving credits under the new law.

Environmentally Sensitive Areas

In 2006 the Wisconsin Department of Natural Resources published the *Wisconsin Land Legacy Report, An Inventory of Places to Meet Future Conservation and Recreation Needs*. This report compiled a list of 229 legacy places in sixteen ecological landscapes in the State of Wisconsin. Table 6.06 provides an inventory of the Legacy Places listed in that report for Pepin County.

Table 6.06 Legacy Places – Public Conservation Lands in Pepin County

Legacy Places				
Lower Chippewa River and Prairies (LC)	Includes portions of the Red Cedar and Chippewa River watersheds in Dunn, Pepin, Eau Claire and Buffalo counties		The area along the Chippewa River, downstream from Eau Claire, and along the Red Cedar River, downstream from Menomonie, contains one of the largest floodplain forests in the upper Midwest. It also harbors the largest and highest quality floodplain savanna in the state. Along with the rugged hills to the southeast, this area supports more rare species (125) and more native prairies (25% of the state total acreage) than any area of comparable size in Wisconsin. Seventy-five percent of Wisconsin’s nesting bird species occur in the area, as do 50% of Wisconsin’s plant species. Exceptional occurrences of dry sand savanna occur on some of the river terraces. In recognition of these unique natural resources, the Lower Chippewa River State Natural Area was recently established.	

Public Conservation Lands

Name	Location	Acreage	Description	Recreation Uses
Upper Mississippi River Wildlife and Fish Refuge (UM)	Extends 284 miles from Wabasha, MN to Rock Island, IL	194,000 acres	The refuge encompasses most of the floodplain associated with the Mississippi River and is made up of numerous side channels, backwater sloughs, marshes, and extensive tracts of floodplain forest dominated by silver maple, cottonwood and green ash. The refuge supports important populations of freshwater mussels, game and non-game fish, reptiles, amphibians, songbirds, herons, and bald eagles. The refuge is host to significant waterfowl migrations.	Boating, fishing and waterfowl hunting.
Tiffany State Wildlife Area	Located along the Chippewa River between Nelson & Durand. About 1/6 lies W of the Chippewa River in Pepin County & rest lies E of Chippewa River in Buffalo County.	12,940	The Tiffany State Wildlife area contains one of the state's largest, continuous bottomland hardwood forests. Beaver dams on sloughs and old river meanders create a maze of ponds and wetlands. Timber harvests help maintain aspen and oak in a diverse pattern of size and age classes. This variety in woodland composition and structure provides food and shelter for a wide variety of wildlife including deer, ruffed grouse and beaver. Dead trees with dens are left to provide wildlife homes. Oaks with superior potential for producing acorns are preserved to provide high energy wildlife food.	Hunting, trapping, fishing, birding, berry picking and hiking. Primitive camping (i.e., tent camping) is allowed on the property by permit. No developed campsites are maintained on the property.
Nine Mile Island State Natural Area	Dunn & Pepin Counties.	1,430	Located within an extensive river ecosystem that includes the Chippewa River and Nine Mile Slough and features 2 high quality native plant communities - oak barrens and floodplain forest. The area has been identified as having an exceptionally diverse flora with a number of rare species including the largest population of the state-endangered beak grass (<i>Diarrhena obovata</i>). Other rare species include three freshwater mussel species, 9 species of fish, and numerous animals such as the red-shouldered hawk (<i>Buteo lineatus</i>) that prefers unfragmented floodplain forest as habitat.	Hiking, cross country skiing, hunting and trapping, wildlife viewing

Threatened and Endangered Wildlife Habitats

Established in 1985 by the Wisconsin legislature, Wisconsin's Natural Heritage Inventory program (NHI) is part of an international network of inventory programs. The program is responsible for maintaining data on the locations and status of rare species, natural communities, and natural features throughout the state. Species and natural communities tracked by the Wisconsin NHI Program can be found on the NHI Working List.

The Natural Heritage Inventory (NHI) county data show in Tables 6.07, 6.08 and 6.09 are intended as a general reference for the public, and are presented as a list of rare species (endangered, threatened and special concern) and other sensitive resources or high-quality natural communities and significant natural features that are known to occur within each township in a county.

Table 6.07 Endangered, Threatened, and Special Concern Animals in Pepin County

Scientific Name	Common Name	State Status	Federal Status	Group name
<i>Acanthametropus pecatonica</i>	Pecatonica River Mayfly	END		Mayfly
<i>Acipenser fulvescens</i>	Lake Sturgeon	SC/H		Fish
<i>Alasmidonta marginata</i>	Elktoe	SC/P		Mussel
<i>Alosa chrysochloris</i>	Skipjack Herring	END		Fish
<i>Ammocrypta clara</i>	Western Sand Darter	SC/N		Fish
<i>Anguilla rostrata</i>	American Eel	SC/N		Fish
<i>Aphredoderus sayanus</i>	Pirate Perch	SC/N		Fish
<i>Aspidoscelis sexlineata</i>	Six-lined Racerunner	SC/H		Lizard
<i>Attenuipyga vanduzeei</i>	A Leafhopper	SC/N		Leafhopper
Bird Rookery	Bird Rookery	SC		Other
<i>Botaurus lentiginosus</i>	American Bittern	SC/M		Bird
<i>Brachycercus ojbwe</i>	Ojibwe Small Square-gilled Mayfly	SC/N		Mayfly
<i>Buteo lineatus</i>	Red-shouldered Hawk	THR		Bird
<i>Cercobrachys lillie</i>	Wisconsin Small Square-gilled Mayfly	SC/N		Mayfly
<i>Chlidonias niger</i>	Black Tern	SC/M		Bird

Chondestes grammacus	Lark Sparrow	SC/M		Bird
Crotalus horridus	Timber Rattlesnake	SC/P		Snake
Crystallaria asprella	Crystal Darter	END		Fish
Cycleptus elongatus	Blue Sucker	THR		Fish
Dendroica cerulea	Cerulean Warbler	THR		Bird
Ellipsaria lineolata	Butterfly	END		Mussel
Elliptio crassidens	Elephant Ear	END		Mussel
Emydoidea blandingii	Blanding's Turtle	THR		Turtle
Etheostoma asprigene	Mud Darter	SC/N		Fish
Falco peregrinus	Peregrine Falcon	END		Bird
Haliaeetus leucocephalus	Bald Eagle	SC/P		Bird
Helicodiscus singleyanus	Smooth Coil	SC/N		Snail
Helmitheros vermivorus	Worm-eating Warbler	END		Bird
Hiodon alosoides	Goldeye	END		Fish
Ictiobus niger	Black Buffalo	THR		Fish
Ixobrychus exilis	Least Bittern	SC/M		Bird
Lampsilis teres	Yellow & Slough Sandshells	END		Mussel
Macrhybopsis storeriana	Silver Chub	SC/N		Fish
Megaloniaias nervosa	Washboard	SC/P		Mussel
Metretopus borealis	A Cleft-footed Minnow Mayfly	SC/N		Mayfly
Moxostoma carinatum	River Redhorse	THR		Fish
Moxostoma valenciennesi	Greater Redhorse	THR		Fish
Notropis amnis	Pallid Shiner	END		Fish
Notropis texanus	Weed Shiner	SC/N		Fish
Ophiogomphus smithi	Sand Snaketail	SC/N		Dragonfly
Oporornis formosus	Kentucky Warbler	THR		Bird
Opsopoeodus emiliae	Pugnose Minnow	SC/N		Fish
Pituophis catenifer	Gophersnake	SC/P		Snake
Plethobasus cyphus	Bullhead	END	C	Mussel
Polyodon spathula	Paddlefish	THR		Fish
Quadrula metanevra	Monkeyface	THR		Mussel
Rallus elegans	King Rail	SC/M		Bird
Simpsoniaias ambigua	Salamander Mussel	THR		Mussel
Sistrurus catenatus catenatus	Eastern Massasauga	END	C	Snake
Tritogonia verrucosa	Buckhorn	THR		Mussel
Wilsonia citrina	Hooded Warbler	THR		Bird

State Status: THR - Threatened, END - Endangered, SC - Special Concern, SC/P - Fully protected, SC/N - No protection, SC/H - Take regulated by open/closed season, SC/FL - Federally protected as endangered or threatened, SC/M - Protected by Migratory Bird Act.

Federal Status (in Wisconsin): LE - Listed as Endangered, LT - Listed as Threatened, C - Candidate for listing.

Table 6.08 Endangered, Threatened, and Special Concern Plants in Pepin County

Scientific Name	Common Name	State Status	Federal Status	Group name
Anemone caroliniana	Carolina Anemone	END		Plant
Artemisia dracunculus	Dragon Wormwood	SC		Plant
Artemisia frigida	Prairie Sagebrush	SC		Plant
Calylophus serrulatus	Yellow Evening Primrose	SC		Plant
Dalea villosa var. villosa	Silky Prairie-clover	SC		Plant
Diarrhena obovata	Beak Grass	END		Plant
Gentiana alba	Yellow Gentian	THR		Plant
Glycyrrhiza lepidota	Wild Licorice	SC		Plant
Huperzia porophila	Rock Clubmoss	SC		Plant
Lespedeza leptostachya	Prairie Bush-clover	END	LT	Plant
Liatis punctata var. nebraskana	Dotted Blazing Star	END		Plant
Opuntia fragilis	Brittle Prickly-pear	THR		Plant
Phemeranthus rugospermus	Prairie Fame-flower	SC		Plant

Scirpus heterochaetus	Slender Bulrush	SC	Plant
Scutellaria parvula var. parvula	Small Skullcap	END	Plant
Silene nivea	Snowy Campion	THR	Plant
Strophostyles leiosperma	Small-flowered Woolly Bean	SC	Plant

State Status: THR - Threatened, END - Endangered, SC - Special Concern, SC/P - Fully protected, SC/N - No protection, SC/H - Take regulated by open/closed season, SC/FL - Federally protected as endangered or threatened, SC/M - Protected by Migratory Bird Act.

Federal Status (in Wisconsin): LE - Listed as Endangered, LT - Listed as Threatened, C - Candidate for listing.

Table 6.09 Endangered, Threatened, and Special Concern Communities in Pepin County

Communities		
Dry cliff	Moist cliff	Sand prairie
Dry prairie	Oak barrens	Shrub-carr
Emergent marsh	Oak opening	Southern dry-mesic forest
Floodplain forest	Pine relict	Southern mesic forest
Lake--unique	Sand barrens	Southern sedge meadow

River and Stream Corridors

Pepin County is rich in river and stream corridors. Pepin County’s character is influenced by the Mississippi River, its boundary on the southwest and the Chippewa River, its boundary on the east until the river bisects the northern part of the county.

The County is made up of two major river basins: the Lower Chippewa Basin and the Buffalo Trempealeau Basin. There are six watersheds located within those basins: 1) Bear Creek, 2) Eau Galle River, 3) Lowes and Rock Creeks, 4) Plum Creek, and 5) Rush River watersheds are located in the Lower Chippewa Basin and the Lower Buffalo River Watershed is located in the Buffalo-Trempealeau Basin. Tables 6.10 through 6.15 provide detailed information on the watersheds.

Bear Creek Watershed (LC01)

The Bear Creek Watershed is located in Buffalo and Pepin counties. The watershed drains rolling agricultural and wooded areas with many of the tributaries originating in steep coulees. It also drains one urban area, the City of Durand. All streams within the Bear Creek Watershed drain the eastern slope of the Chippewa River Valley. Land use in the Bear Creek Watershed is dominated by forest cover (40%) and agriculture (37%). Wetlands and open water encompass most of the remaining area in the watershed with 15% and 6%, respectively. Grasslands make up a little over one percent of the watershed’s total area, while urban and suburban land use is minimal with one-tenth a percent and one-half a percent, respectively. The Bear Creek Watershed contains typical steep topography characteristic of the Driftless or un-glaciated area of the state. Because the most productive and level land is on the valley floor, most farming takes place immediately adjacent to streams. ¹

**Bear Creek Watershed
“At a Glance”**

Watershed Size: 177 sq. miles
 Stream Miles: 383
 Lake Acres: 1,081
 Wetland Acres: 16,137
 Outstanding/Exceptional Miles: 0
 Trout Waters: 47.2
 Impaired Streams: 37.6
 Impaired Lakes: 0

¹ 2011 Bear Creek Watershed Water Quality Management Plan Update

Table 6.10 Rivers, Creeks and Lakes within the Bear Creek Watershed

Name	Start Mile	End Mile	Size	Water Type	Fish/Aquatic Life Condition	Trout Stream Classification
Bear Creek	0	1.5	1.5 Miles	River	Unknown	
Bear Creek	1.5	7.5	6.0 Miles	River	Fair	Class II
Bear Creek ⁽¹⁾	7.5	10	2.5 Miles	River	Fair	Class II
			22.9 Acres			
Browning Lake ⁽²⁾			Acres	Lake	Unknown	
Creek 1-3	0	1	1.0 Miles	River	Unknown	Class II
Fox Valley Creek (31-1) Trib. To Bear Creek	0	1.3	1.3 Miles	River	Unknown	
Prissel Valley Creek (3-5) Trib. To Bear Creek ⁽¹⁾	0	2	2.0 Miles	River	Unknown	
Newton Valley Creek (Shoe Creek) ⁽¹⁾	0	4.27	4.3 Miles	River	Poor	Class II
Unnamed Cr T25n R13w S1 (1-30)	1	5	4.0 Miles	River	Unknown	
Unnamed Cr T25n R13w S1 (1-30)	5	6	1.0 Miles	River	Unknown	
Unnamed Lake			4.8 Acres	Lake	Unknown	

(1) Located in Buffalo and Pepin Counties, (2) Located in Dunn and Pepin Counties

Goals

- 1/6/2012 - Update trout angling regulations to category four waters to protect brook trout fisheries
- 1/6/2012 - Identify water quality or habitat threats to protect rare species
- 1/6/2012 - Encourage best management practices and buffer zones to decrease erosion.

Priorities

- 1/6/2012 - Low trout densities
- 1/6/2012 - Rare species populations have been declining in the Chippewa River
- 1/6/2012 - Stream habitat hindrance due to lack of coarse substrate and excessive sand bedload.

Recommendations for Bear Creek Watershed

Type	Description	Date and Status
Action Migrated from WATERS	The nonpoint source priority watershed selection committee should consider the North Branch of Little Bear Creek and Shoe Creek for selection as small-scale priority watershed projects under the Wisconsin Nonpoint Source Water Pollution Abatement Program (Type B).	1/1/10 Proposed
Monitor Fish Tissue	2050000 name Chippewa River TMDL ID 80 Start Mile 20.73 End Mile 37.58	11/21/11 Proposed

Source: Department of Natural Resources, Wisconsin Watershed Search

Eau Galle River Watershed (LC03)

The Eau Galle River watershed is located in Dunn, Pepin, Pierce and St. Croix counties. The watershed drains approximately 250 sq. miles of rolling agricultural and wooded areas with many of its tributaries originating in steep coulees. The Eau Galle River watershed is approximately 171,440 acres in size and consists of 519 miles of streams and rivers, 252 acres of lakes and 3,943 acres of wetlands. The watershed is dominated by agriculture (40%), forest (34%) and grassland (23%) and is ranked high for nonpoint source issues affecting streams and groundwater.

**Eau Galle River Watershed
"At a Glance"**

Watershed Size: 268 sq. miles
 Stream Miles: 519
 Lake Acres: 252
 Wetland Acres: 3,943
 Outstanding/Exceptional Miles: 8.3
 Trout Waters: 106.4
 Impaired Streams: 61.5
 Impaired Lakes: 134.6 acres

Table 6.11 Rivers, Streams and Lakes in the Eau Galle Watershed

Name	Start Mile	End Mile	Size	Water Type	Fish/Aquatic Life Condition	Trout Stream Classification
Arkansaw Creek	0	9.01	9.0 Miles	River	Unknown	Class II
Creek 1-5 ⁽¹⁾	0	1.5	1.5 Miles	River	Unknown	
Little Arkansaw Creek	0	5.3	5.3 Miles	River	Unknown	
Little Arkansaw Creek ⁽¹⁾	5.3	6.6	1.3 Miles	River	Unknown	

Missouri Creek ⁽¹⁾	0	8.6	8.6 Miles	River	Unknown	
Ninemile Slough ⁽¹⁾	0	5	5.0 Miles	River	Unknown	
Schlosser Lake			7.8 Acres	Lake	Unknown	
Thompson Lake			42.0 Acres	Lake	Unknown	
Creek 9-10	0	0.37	0.4 Miles	River	Unknown	Class I
Un Creek	0	2.9	2.9 Miles	River	Unknown	
Creek 14-9	0	3	3.0 Miles	River	Unknown	
Creek 9-16	0.01	0.93	0.9 Miles	River	Unknown	
Unnamed Lake			0.8 Acres	Lake	Unknown	
Unnamed Lake			6.8 Acres	Lake	Unknown	

(1) Located in Dunn and Pepin Counties

Recommendations for Eau Galle River Watershed

Type	Description	Date and Status
Action Migrated from WATERS	WRM should conduct water quality monitoring at Eau Galle Lake at Eau Galle and Thompson Lake (Type B).	1/1/2010
Action Migrated from WATERS	WRM should consider Eau Galle Lake at Eau Galle and Thompson Lake high priorities for receiving lakes planning grants (Type B).	1/1/2010
Action Migrated from WATERS	Water Regulation and Zoning and WRM should assist local land use decision makers and riparian residents in the Eau Galle Lake at Eau Galle and Thompson Lake watersheds in developing and implementing land use management programs that protect water quality (Type B).	1/1/2010
Action Migrated from WATERS	The nonpoint source priority watershed selection committee should consider the Eau Galle Watershed a high priority for selection as a priority watershed under the Wisconsin Nonpoint Source Water Pollution Abatement Program (Type B).	1/1/2010
Monitor Fish Tissue	2050000 name Chippewa River TMDL ID 80 Start Mile 20.73 End Mile 37.58	11/21/2011

Source: Department of Natural Resources, Wisconsin Watershed Search

Lowes and Rock Creeks Watershed (LC24)

The Lowes and Rock Creeks watershed is 140,266 acres in size and is located in parts of Eau Claire, Dunn and Pepin Counties. In Pepin County the watershed drains the northern part of the Town of Albany and the north east part of the Town of Lima. The watershed drains rolling agricultural, wooded and grassland areas. The watershed does drain a portion of the City of Eau Claire.

**Lowes and Rock Creeks Watershed
"At a Glance"**

Watershed Size: 219 sq. miles
 Stream Miles: 372
 Lake Acres: 317
 Wetland Acres: 12,231
 Outstanding/Exceptional Miles: 32.7
 Trout Waters: 71.1
 Impaired Streams: 58.2
 Impaired Lakes: 0

Table 6.12 Rivers, Streams and Lakes in the Lowes and Rock Creeks Watershed

Name	Start Mile	End Mile	Size	Water Type	Fish/Aquatic Life Condition	Trout Stream Classification
Cranberry Creek ⁽¹⁾	0	15	15.0 Miles	River	Unknown	
Duscham Creek ⁽¹⁾	0	8	8.0 Miles	River	Unknown	
Fall Creek ⁽¹⁾	0	8.24	8.2 Miles	River	Unknown	Class II
Little Rock Creek	0	5	5.0 Miles	River	Unknown	
Pinch Creek ⁽¹⁾	0	2	2.0 Miles	River	Unknown	
Rock Creek ⁽²⁾	4.64	9.59	5.0 Miles	River	Unknown	
Unnamed Lake			2.4 Acres	Lake	Unknown	
Unnamed ⁽¹⁾			2.4 Acres	Lake	Unknown	

(1) Located in Dunn and Pepin Counties, (2) Located in Dunn, Eau Claire and Pepin Counties

Recommendations

Type	Description	Date and Status
Action Migrated from Waters	District WRM should collect water samples during periods of low flow from Lowes Creek below the tire landfill and analyze it for zinc (Type B).	1/1/2010
Action Migrated from Waters	Fisheries Management and Property Management should pursue further land acquisition along Clear Creek as easements and in the Lowes Creek watershed upstream of County Highway H as fee title (Type B).	1/1/2010
Citizen-Based Stream Monitoring Project	Collect updated water quality data to assess the current overall stream health. Assessment monitoring may include chemistry, biological and physical parameters to help identify stream segments that are degraded due to lack of adequate buffers and vegetative filter strips or other causes. This information will help guide Conservation Reserve Enhancement (CREP), Targeted Runoff Management (TRM), and other conservation funding programs to the areas of greatest need.	1/1/2012
Monitor Fish Tissue	2050000 name Chippewa River TMDL ID 80 Start Mile 20.73 End Mile 37.58	11/21/2011
Monitor Water or Sediment Quality	WRM should conduct water quality monitoring of Cooley Lake (Type B).	1/1/2010

Source: Department of Natural Resources, Wisconsin Watershed Search

Table 6.13 Plum Creek Watershed (LC02)

The Plum Creek watershed is 88 square miles with approximately 49 square miles (55.6%) in Pierce County, and 39 square miles (44.4%) in Pepin County. Plum Creek is the primary waterway with a base flow of approximately 55 cubic feet per second near its mouth. The watershed drains rolling agricultural and wooded areas with many of the tributaries originating in steep coulees. The watershed also drains one small urban area, the village of Plum City. Plum Creek has three named tributaries; Elk, Porcupine and Rock Elm Creeks and a number of small-unnamed tributaries. Plum Creek originates in southeastern Pierce County and flows southeasterly about 27 miles where it enters the Chippewa River in south central Pepin County.

**Plum Creek Watershed
"At a Glance"**

Watershed Size: 141 sq. miles
 Stream Miles: 315
 Lake Acres: 794
 Wetland Acres: 3,140
 Outstanding/Exceptional Miles: 0
 Trout Waters: 34.9
 Impaired Streams: 20.7
 Impaired Lakes: 260.6

Table 6.13 River, Streams and Lakes in the Plum Creek Watershed

Name	Start Mile	End Mile	Water Size	Water Type	Fish/Aquatic Life Condition	Trout Stream Classification
Chimney Lake			32.5 Acres	Lake	Unknown	
Dead Lake			68.0 Acres	Lake	Unknown	
Elk Creek ⁽¹⁾	0	3.9	3.9 Miles	River	Unknown	
Elk Creek ⁽¹⁾	3.9	5	1.1 Miles	River	Unknown	
Forty Acre Lake			65.2 Acres	Lake	Unknown	
Little Plum Creek	0	4.67	4.7 Miles	River	Unknown	Class II
Little Plum Creek	4.67	8	3.3 Miles	River	Unknown	
Plum Creek	0	7.23	7.2 Miles	River	Unknown	Class II
Plum Creek ⁽¹⁾	7.23	13.25	6.0 Miles	River	Unknown	Class I
Porcupine Creek ⁽¹⁾	0	9.3	9.3 Miles	River	Unknown	
Silver Birch Lake			144.6 Acres	Lake	Poor	
Boyd Springs Creek	0	0.15	0.2 Miles	River	Unknown	Class II
Thompson Slough	0	1	1.0 Miles	River	Unknown	
Stream 28-10	0	7	7.0 Miles	River	Unknown	
Unnamed			2.1 Acres	Impoundment	Unknown	
Unnamed Lake			3.4 Acres	Lake	Unknown	
Unnamed Lake			0.5 Acres	Lake	Unknown	
Unnamed Lake			1.2 Acres	Lake	Unknown	
Unnamed Lake			8.2 Acres	Lake	Unknown	
Unnamed Lake			65.2 Acres	Lake	Unknown	
Unnamed Lake			2.1 Acres	Lake	Unknown	
Unnamed Lake			4.0 Acres	Lake	Unknown	
Unnamed Lake			2.6 Acres	Lake	Unknown	

Unnamed Lake	2.1 Acres	Lake	Unknown
Unnamed Lake	0.6 Acres	Lake	Unknown
Unnamed Lake	10.3 Acres	Lake	Unknown
Wilcox Lake	55.3 Acres	Lake	Unknown

(1) Located in Pepin and Pierce Counties

Goals

None listed

Priorities

None listed

Recommendations

Type	Description	Date and Status
Action Migrated from Waters	Wastewater Management and WRM should reexamine the effluent limits for the Plum City Wastewater Treatment Plant once ammonia standards and policies are revised (Type B).	1/1/2010
Action Migrated from Waters	District Fisheries Management staff should conduct a follow-up fisheries population survey of Silver Birch Lake to document fish migration from the Chippewa River during the 1993 flood (Type B).	1/1/2010
Action Migrated from Waters	WRM should assist local lake management interest groups in organizing and/or working to improve and protect the water quality of Silver Birch Lake (Type B).	1/1/2010
Action Migrated from Waters	The Bureau of Water Regulation and Zoning and WRM should assist local land use decision makers and riparian residents in the Silver Birch Lake watershed in developing and implementing land use management programs that protect water quality (Type B).	1/1/2010
Action Migrated from Waters	The nonpoint source priority watershed selection committee should consider Lake and Silver Birch Lake high priorities for selection as priority lakes projects under the Wisconsin Nonpoint Source Water Pollution Abatement Program (Type B).	1/1/2010
Action Migrated from Waters	WRM should find a self-help lake monitoring volunteer for Silver Birch Lake (Type B).	1/1/2010
Action Migrated from Waters	WRM should conduct a watershed land use assessment for Silver Birch Lake (Type B).	1/1/2010
Action Migrated from Waters	Water Resources Management should assist Pepin County in developing a lake management plan for Silver Birch Lake (Type B).	1/1/2010
Action Migrated from Waters	WRM should assist Fisheries Management and Pepin County in designing an aeration system in Silver Birch Lake (Type B).	1/1/2010
Action Migrated from Waters	WRM should evaluate potential sources which increase summer nutrient levels in Silver Birch Lake (Type B).	1/1/2010
Action Migrated from Waters	WRM should consider Nugget Lake mid Silver Birch Lake high priorities for receiving a lakes planning/protection grant to implement management recommendations (Type B).	1/1/2010
Monitor Fish Tissue		10/25/2011

Source: Department of Natural Resources, Wisconsin Watershed Search

Rush River Watershed (LC22)

The Rush River watershed covers 185,325 acres in Pepin, Pierce and St. Croix Counties. It is located in two Ecological Landscapes: the Western Coulee and Ridges and the Western Prairie. The Western Coulee and Ridges Ecological Landscape within which the Pepin County portion of the watershed is located, is characterized by its highly eroded, Driftless topography and relatively extensive forested landscape. Soils are silt loams (loess) and sandy loams over sandstone residuum over dolomite. Agriculture is the major land use affecting surface waters in this watershed. The comparison of current land use to original vegetation shows a significant conversion of prairie and forests to cropland and pasture. This land use conversion has led to a larger volume of runoff and less infiltration of precipitation. There are no lakes of sufficient size in the watershed.

**Rush River Watershed
"At a Glance"**

Watershed Size: 290 sq. miles
 Stream Miles: 599
 Lake Acres: 192
 Wetland Acres: 2,372
 Outstanding/Exceptional Miles: 31.8
 Trout Waters: 80.7
 Impaired Streams: 1.3
 Impaired Lakes: 0

Table 6.14 River, Streams and Lakes of the Rush River Watershed

Name	Start Mile	End Mile	Water Size	Water Type	Fish/Aquatic Life Condition	Trout Stream Classification
Bogus Creek	0	8.25	8.3 Miles	River	Unknown	Class II
Little Pine Creek	0	1	1.0 Miles	River	Unknown	
Lost Creek	0	8	8.0 Miles	River	Unknown	
Unnamed			0.4 Acres	Impoundment	Unknown	
Unnamed			13.8 Acres	Lake	Unknown	
Unnamed			31.1 Acres	Lake	Unknown	

Unnamed Lake			3.6 Acres	Lake	Unknown
West Lost Creek	0	1	1.0 Miles	River	Unknown

Recommendations

Type	Description	Date and Status
Action Migrated from Waters	District Fisheries Management and WRM should conduct a stream survey for fish and aquatic insects in the St. Croix County portion of the Rush River near Centerville (Type B).	1/1/2010
Action Migrated from Waters	District WRM should conduct a water quality standards review, including sampling fish and macro invertebrates, in the portion of the Rush River headwater near Baldwin classified as a limited forage fishery (Type B).	1/1/2010
Action Migrated from Waters	Wastewater Management should include a private well survey and a sinkhole inspection in the next issuance of the Baldwin WPDES permit (Type B).	1/1/2010
Action Migrated from Waters	Fisheries Management should coordinate the installation of fish protection structures in the Rush River (Type B).	1/1/2010
Action Migrated from Waters	The district nonpoint source priority watershed selection committee should consider Pine Creek a high priority for selection as a small-scale priority watershed project under the Wisconsin Nonpoint Source Water Pollution Abatement Program (Type B).	1/1/2010

Source: Department of Natural Resources, Wisconsin Watershed Search

Lower Buffalo River Watershed (BT07)

The Lower Buffalo River Watershed is approximately 176,278 acres in size and consists of 638 miles of streams and rivers, 891 acres of lakes, and 9,907 acres of wetlands. The watershed is dominated by forests and agriculture, but is ranked high for nonpoint source issues affecting streams and groundwater in the watershed. The majority of this watershed lies in Buffalo County. Only a small portion is located in the southern part of the Town of Albany and the southeastern part of the Town of Lima. Primary land use in the watershed is agriculture.

**Lower Buffalo River Watershed
"At a Glance"**

Watershed Size: 275 sq. miles
 Stream Miles: 638
 Lake Acres: 891
 Wetland Acres: 9,907
 Outstanding/Exceptional Miles: 0
 Trout Waters: 487.2
 Impaired Streams: 0
 Impaired Lakes: 0

Table 6.15 Rivers, Streams and Lakes in the Lower Buffalo River Watershed

Name	Start Mile	End Mile	Water Size	Water Type	Fish/Aquatic Life Condition	Trout Stream Classification
Brownlee Creek ⁽¹⁾	0	3	3.0 Miles	River	Unknown	
Holmes Creek ⁽¹⁾	0	3	3.0 Miles	River	Unknown	

(1) Located in Buffalo and Pepin Counties

Recommendations

Type	Description	Date and Status
Evaluate & Protect Groundwater, Sourcewater	WDNR staff should continue to encourage communities to develop wellhead protection plans in the Watershed and the whole basin	7/1/2010
Wastewater Monitoring, Analysis, or Improvements	The following communities should complete a facility plan for an upgrade of the existing WWTP. Mindoro Sanitary District City of Alma Center	7/1/2010

Source: Department of Natural Resources, Wisconsin Watershed Search

Metallic and Non-Metal Mineral Resources

Chapter NR 135, Wisconsin Administrative Code, made it mandatory for counties to enact ordinances by June 1, 2001 for the purpose of establishing and administering programs to address the reclamation of nonmetallic mining sites and to ensure that uniform reclamation standards are applied consistently throughout the State. The Pepin County Non-Metallic Mining ordinance can be found on the Pepin County website <http://www.co.pepin.wi.us/> under "Ordinances".

In 2012, Pepin County had 15 active and 1 inactive non-metallic mining sites covering 130 acres. Of these 16 sites 7 are sand and gravel quarries and the remaining 9 are rock quarries. In addition there are 2 reclaimed mine sites.

Non-metallic mining is the extraction of stone, sand, rock or similar materials from natural deposits. The most common examples of non-metallic mines are quarries and pits. Non-metallic mining is a widespread activity in Wisconsin. The State of Wisconsin DNR website stated there were an estimated 2,500 to 3,000 non-metallic sites in Wisconsin which provide:

- aggregate for construction
- gravel and crushed stone for road construction
- dimension stone for monuments
- volcanic andesite for shingles
- livestock bedding sand;
- peat for horticulture and landscaping;
- industrial sand for export out of state for the oil industry
- a considerable variety of materials for other uses.

Table 6.16 lists all active non-metallic quarries in Pepin County by type of quarry and location. Map 6.03 shows the location of non-metallic mine sites. This information was obtained from the Pepin County Land Management and Land Conservation Departments.

Table 6.16 Pepin County Non-Metallic Active Mining Sites

Town	Total Acres	Type of deposit	Town	Total Acres	Type of deposit
Durand	23.6	Limestone	Stockholm	5.0	Limestone
Subtotal	23.6		Subtotal	5.0	
Frankfort	8	Limestone	Waterville	4.0	Limestone
Frankfort	24.0	Limestone/Sand	Waterville	5.0	Sand/Gravel
Subtotal	32.0		Waterville	3.9	Sand/Gravel
Pepin	7	Limestone	Waterville	6.0	Limestone
Pepin	3	Limestone	Subtotal	18.9	
Pepin	2.5	Sand/Gravel	Waubeek	6.0	Limestone
Pepin	5.0	Sand/Gravel	Waubeek	15.2	Sand/Gravel
Pepin	6.3	Limestone	Waubeek	5.0	Sand/Gravel
Subtotal	23.8		Subtotal	26.2	

Historical and Cultural Resources

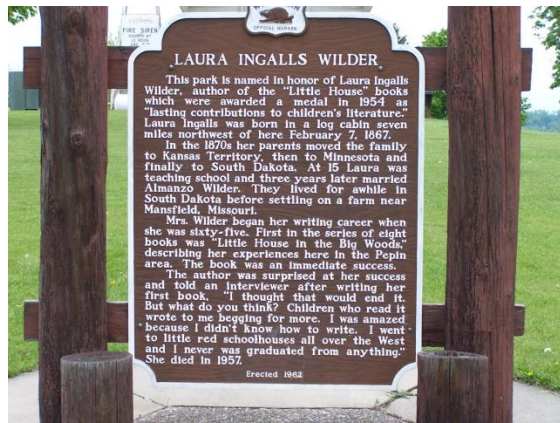
The National Register of Historic Places identifies two historic places in the Pepin County. These two places are: The Durand Free Library, 315 2nd Ave. W., Durand, listed for its Architecture/Engineering; and the former Pepin County Courthouse and Jail, 315 W. Madison St., Durand, listed for its Architecture/Engineering Event. The former Pepin County Courthouse and Jail is the last remaining wood frame courthouse in Wisconsin and is now the home of Courthouse Museum.

Wisconsin Architecture and History Inventory

Wisconsin’s Architecture and History Inventory (AHI) identifies 226 properties in Pepin County. The State Historical Society’s Division of Historic Preservation assembled this list of properties over the period of more than 25 years. It contains data on buildings, structures, and objects that illustrate Wisconsin’s unique history. It documents a wide range of historic properties such as round barns; log houses, metal truss bridges, small town commercial buildings, and Queen Anne houses that make up Wisconsin’s distinct cultural landscape. Approximately 120,000 properties in Wisconsin are on this list that is maintained by the Wisconsin Historical Society. In Pepin County there are 223 buildings, 2 structures and 1 site identified. Table 6.17 lists the number of historical buildings and sites by type and municipality.

Historical Markers

Six State Historical Markers are located within Pepin County; including: *Pepin County Courthouse* - Washington Square, 315 W Madison St, Durand; *Maiden Rock* - WI-35, 1 mile north of Stockholm; *Laura Ingalls Wilder* - WI-35, Pepin Village Park; *Site of Fort St Antoine* - WI-35, 3 miles northwest of Pepin; *Little House Wayside* - Pepin Co Rd CC, 7miles north of Pepin; *'Phil Scheckel' Anchor* - WI-35, Pepin Village Park.



Laura Ingalls Wilder Historical Marker

Table 6.17 Pepin County's Historic Architecture and History Inventory by Style and Location

Architectural Style	# of sites	Municipality	# of Sites
Gabled Ell	35	Durand	61
Astylistic Utilitarian	33	Pepin	39
Side Gabled	29	Stockholm	37
Gabled Front Houses	25	Lima	27
Commercial Vernacular	14	Waterville	26
Two Sided Cube	13	Albany	16
Queen Anne	11	Frankfort	13
Late Gothic Revival	11	Waubeeek	7
Bungalow	9		
Italianate	8		
Early Gothic Revival	7		
Neo-Classical/Beaux Arts	5		
Vernacular Architecture	4		
One Story Cube	4		
Contemporary	3		
Colonial/Georgian Revival	2		
Greek Revival	2		
Romanesque Revival	2		
Second Empire	2		
Rustic Style	1		
Ranch	1		
English Revival	1		
Dutch Colonial Revival	1		

GOALS, STRATEGIES, POLICIES AND ACTIONS FOR AGRICULTURAL, NATURAL AND CULTURAL RESOURCES

Agricultural, Natural and Cultural Resources Element Goals

Pepin County developed goals based on public input from surveys, public meeting participation, committee and resident knowledge. As previously described, in the context of this plan goals are broad statements that Pepin County desires to achieve. Following each goal are definitions, policies, programs/actions, etc. that are recommended to address each goal. In addition, after selected programs/actions an implementation time period has been designated and these items have been included in the plan implementation schedule located in Chapter 9. Items that do not have a designated implementation period represent general policies or programs and are recommended to be utilized when making policy decisions.

Goals for the Agricultural Element.

Goal A Identify and preserve areas suitable for agriculture.

Objectives:

- a. Assist Towns in preserving productive farmland within their borders consistent with town policies and plans.
Implementation 2013 - 2017
- b. Protect existing agricultural operations and minimize the impact of development on existing agricultural operations.
Implementation throughout the planning period
- c. Discourage the conversion of productive agricultural land to nonagricultural uses.
Implementation throughout the planning period
- d. Encourage development patterns that preserve farmland.
Implementation throughout the planning period
- e. Support land use practices that reduce potential conflicts between agriculture and other land uses.
Implementation throughout the planning period

Policies:

- a. Support the creation of Agricultural Enterprise Areas when supported by impacted towns.
Implementation 2018 - 2033
- b. Support the creation of Farmland Preservation Zoning Districts which are consistent with town comprehensive plans.
Implementation 2018 - 2033
- c. Promote use of conservation cluster development and design for non-farm residential development to preserve existing farmland and prevent agricultural fragmentation
Implementation 2018 - 2033

Goal B Maintain the productivity and sustainability of the county's agricultural areas for current and future generations.

Objectives:

- a. Encourage landowners to adopt modern crop production methods that reduce topsoil losses.
Implementation throughout the planning period
- b. Encourage land use practices that minimize environmental pollution.
Implementation throughout the planning period
- c. Improve and protect surface and groundwater quality.
Implementation 2013 - 2017

Policies:

- a. Promote conservation programs and best management practices identified in the Pepin County Land and Water Resource Management Plan to protect valuable natural resources.
Implementation throughout the planning period
- b. Encourage review of the Livestock Siting Ordinance for Pepin County with reference to ATCP 51.
Implementation 2018 - 2033

Goal C **Promote agriculture and agricultural enterprises so that farming remains economically viable.**

Objectives:

- a. Maintain, support and enhance agriculture as a strong component of the county's economy.
Implementation throughout the planning period
- b. Support and encourage agricultural enterprise.
Implementation throughout the planning period
- c. Encourage diverse agricultural ventures.
Implementation throughout the planning period

Policies:

- a. Support the establishment of Agricultural Business Operations in appropriate locations consistent with town comprehensive plans, when applicable.
Implementation throughout the planning period
- b. Support appropriate infrastructure development such as rail, transit, and roads which assist agricultural commerce.
Implementation 2018 - 2033
- c. Encourage agriculture friendly land uses (such as agri-tourism) at appropriate locations.
Implementation throughout the planning period
- d. Promote small family farms and educate potential farmers of economic viability of small farms.
Implementation throughout the planning period

Goals for the Natural Resources Element:

Goal A **Protect surface and groundwater quality and quantity.**

Objectives:

- a. Support implementation of the Pepin County Land and Water Resource Plan.
Implementation throughout the planning period

Policies:

- a. Recommend development and implementation of an erosion control and storm water management ordinance.
Implementation 2013 - 2017
 - 1. Prevent development from impacting the natural flow of water to wetlands.
Implementation 2013 - 2017
 - 2. Update county shore land ordinance to the new NR115 standards.
Implementation 2013 - 2017
- b. Promote management of run-off to protect all water resources in the county.
Implementation throughout the planning period
- c. Protect the land that recharges aquifers.
Implementation 2013 - 2017
- d. Encourage increased use of buffers along all surface waters.
Implementation throughout the planning period
- e. Adhere to EPA and state of Wisconsin guidelines regulating CAFOs.
Implementation throughout the planning period

Goal B **Promote good stewardship of natural resources through education.**

Objectives:

- a. Provide informational workshops about groundwater quality and quantity for citizen input and education.

Implementation 2013 - 2017

- b. Provide informational workshops about invasive species.

Implementation throughout the planning period

- c. Contact and coordinate with Wis. DNR when threatened, endangered or rare species are found.

Implementation throughout the planning period

- d. Urge the county to establish a permanent Land Use Planning Commission charged with researching land use issues (e.g. silica sand mining, high capacity wells, etc.) which will arise from time-to-time and making recommendations for action by the county and municipalities.

Implementation 2013 - 2017

Goal C | Protect steep slopes, floodplains, shore lands, and forested lands.

Objectives:

- a. Preserve slopes, bluff lands and forested areas in the county.

Implementation throughout the planning period

- b. Support local municipal ordinances related to non-metallic mining operations in the county.

Implementation 2013 - 2017

Policies:

- a. Restrict development on slopes greater than 30%.

Implementation throughout the planning period

- b. Promote DNR forestry best management practices in the county.

Implementation throughout the planning period

- c. Adhere to the county Flood Plain Ordinance.

Implementation throughout the planning period

- d. Consider property tax and/or other credits for shoreline restoration and other water quality improvement projects.

Implementation 2013 - 2017

- e. Update Shore Land Zoning Ordinance to comply with most recent state regulations.

Implementation 2013 - 2017

Goal D | Protect natural areas, wildlife areas, wildlife habitat, and threatened and endangered species.

Objectives:

- a. Prohibit development in wetlands and floodplains.

Implementation throughout the planning period

- b. Maintain/enhance recreational opportunities in the county.

Implementation throughout the planning period

Policies:

- a. Maintain an update the county's Outdoor Recreation Plan.

Implementation throughout the planning period

- b. Support policies, programs and ordinances that maintain creeks, streams, rivers, lakes and wetlands.

Implementation throughout the planning period

Goal E | Reduce excessive noise harmful to the health and well-being of the residents of Pepin County.

Objective

- a. Reduce roadway/transportation, industrial, construction and agricultural noise

Implementation 2013 - 2017

Policy

- a. Develop and implement an excessive noise ordinance
Implementation 2013 - 2017

Goal F	Prevent introduction into the environment of chemicals, particulate matter, or biological materials which cause discomfort, disease, damage or death to humans, other living organisms, the natural environment, or built environment.
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Objective:

- a. Limit or decrease emissions from stationary, mobile, or natural sources of pollution
Implementation throughout the planning period

Policy:

- a. Develop and implement an air pollution ordinance
Implementation 2013 - 2017

Goal G	Limit excessive or obtrusive artificial light.
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Objectives:

- a. Encourage use of light sources of minimum intensity necessary to accomplish the light's purpose and which are shielded or placed to prevent light from straying beyond the area to be illuminated
Implementation throughout the planning period

Policy:

- a. Consider development of regulations to control excessive/obtrusive light
Implementation 2018 - 2033

Goals for the Cultural Element.

Goal A	Preserve and promote unique cultural, historical and archeological resources.
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Goal B	Preserve and promote opportunities and resources for those who produce and enjoy the arts, music and literature.
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Goal C	Encourage communities to develop individual identities.
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Objectives:

- a. Support existing historic preservation efforts;
Implementation throughout the planning period
- b. Encourage new restoration of significant cultural, historical and archeological resources;
Implementation throughout the planning period
- c. Foster cooperation among existing local, regional and state organizations and resources to improve public awareness about and access to the county's cultural, historical and archeological resources.
Implementation throughout the planning period

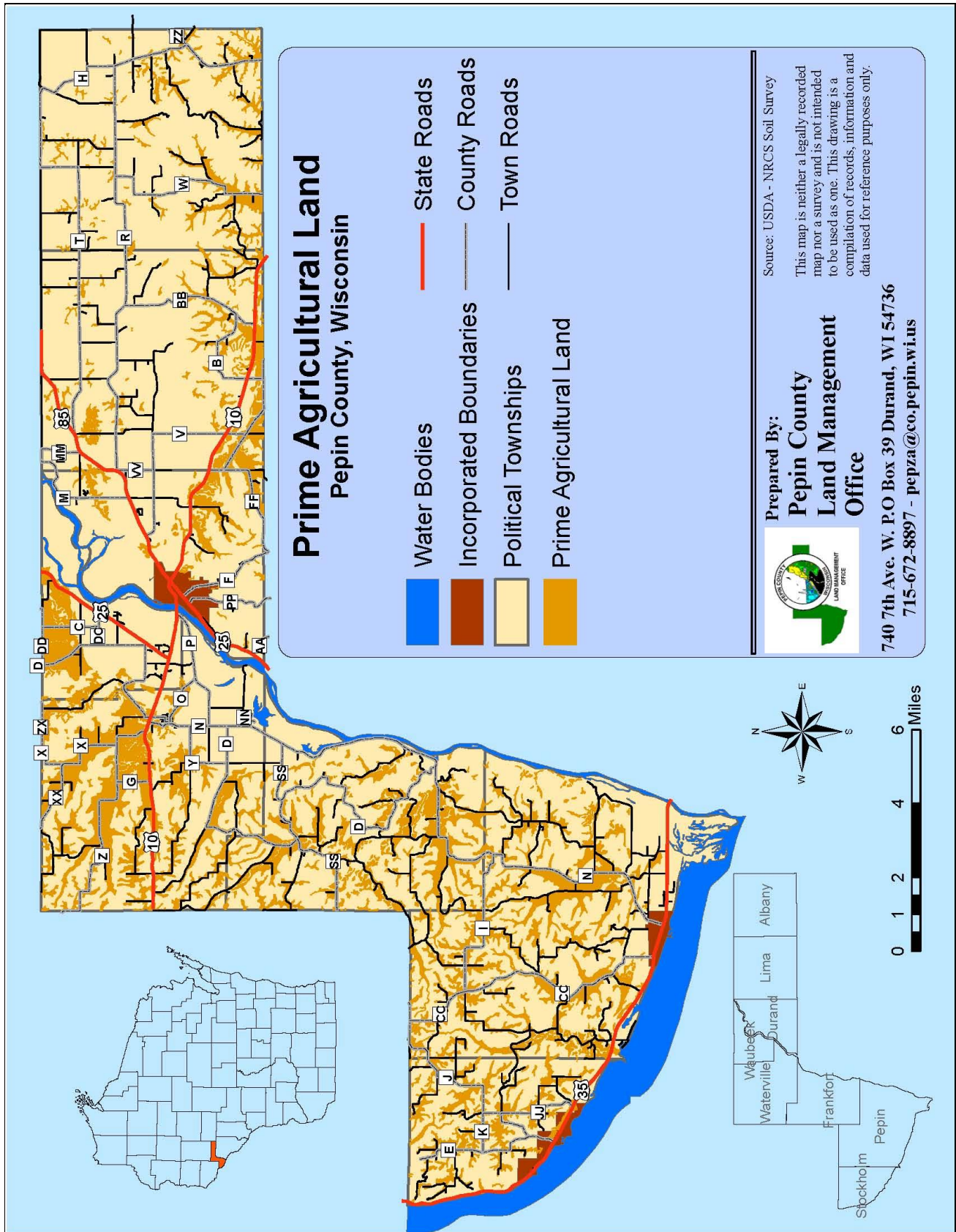
Consistency with Local Comprehensive Planning Goals as described in s. 16.965(4) Wis. Stats.

Listed below are the Comprehensive Planning Goals described in State Statute that are related to the Agricultural, Natural & Cultural Resources Element. Following each goal is a discussion how they were addressed during the planning process.

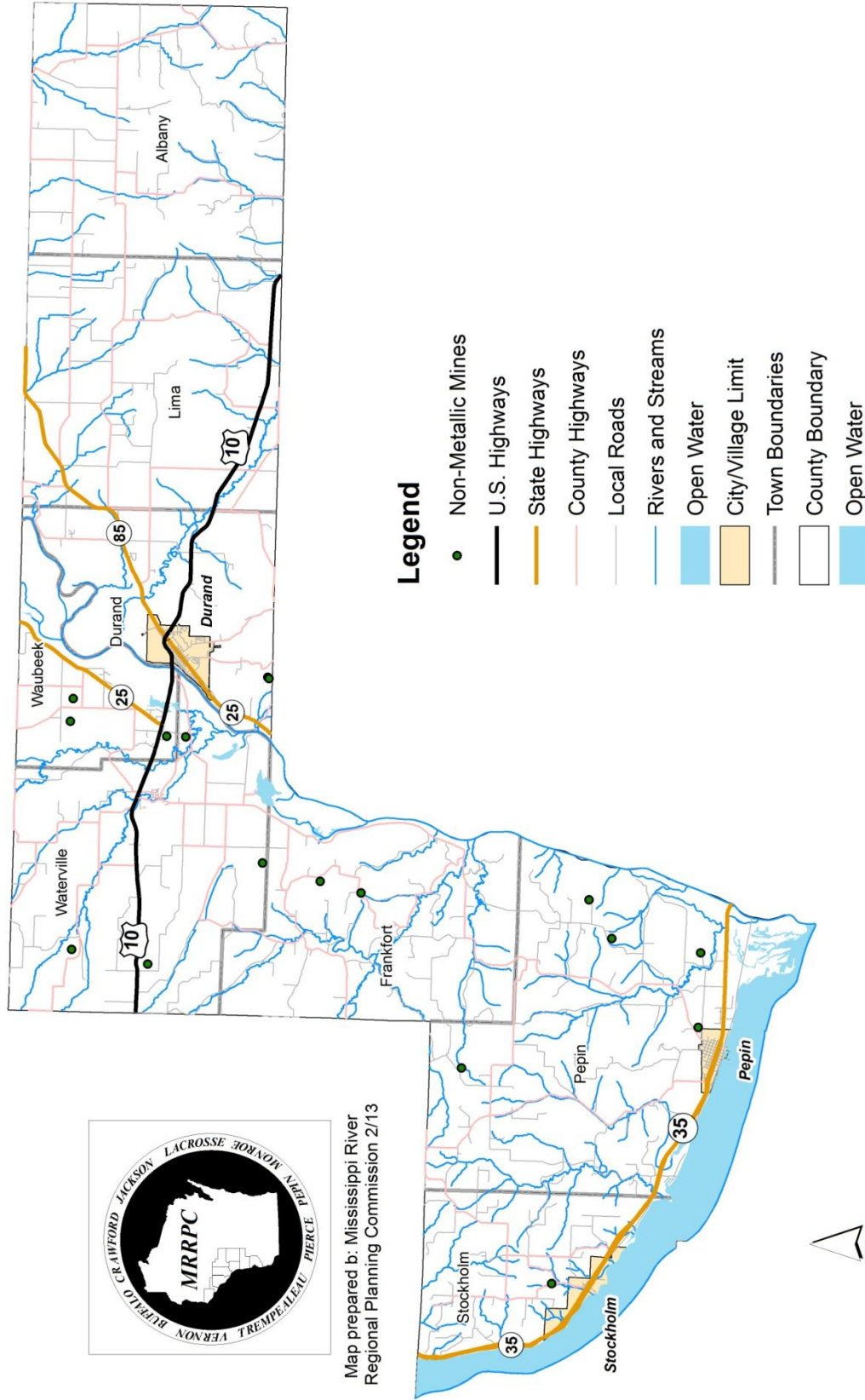
- *Protection of natural areas, including wetlands, wildlife habitats, lakes, woodlands, open spaces, and groundwater resources.*
This goal is addressed in the plan by recommendations that support state and local regulations and programs aimed at preserving natural resources.

- *Preservation of cultural, historic and archaeological sites.*
This goal is addressed by plan recommendations aimed at identifying and preserving historic and cultural sites throughout the County and an effort to increase the number of historic sites listed on the National Register of Historic Places and or the State Register of Historic Places.

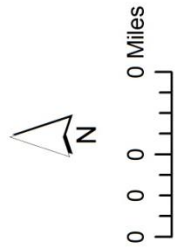
Map 6.01 Pepin County Prime Agricultural Lands



Map 6.02 Pepin County Non-Metallic Mining Sites



Map prepared by: Mississippi River Regional Planning Commission 2/13



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