

MONROE COUNTY

Land and Water Resource Management Plan



*St. Mary's Ridge
Jefferson Township, Monroe County, Wisconsin*

October, 2010



Monroe County Land & Water Resource Management Plan

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PLAN SUMMARY

The Monroe County Land and Water Resource Management Plan (LWRMP) prepared by the Monroe County Land Conservation Committee and staff with input from Monroe County citizens, is intended to guide natural resource management activities in Monroe County from 2011-2015. This plan summarizes the views of the citizens of the county and local, state, and federal agencies with resource responsibilities in Monroe County. Resource assessments and management recommendations are derived from existing plans, staff knowledge and experience, and past and present monitoring activities. Monroe County has a history of partnering with government agencies, private organizations, and citizens to address natural resource issues in the county. As taxpayers demand less duplication of services and stronger resource management, cooperation among agencies and the general public becomes more important than ever in order to make the best use of tax dollars. The Monroe County LWRM plan consists of following eight chapters:

➤ Introduction

This section includes a background on the plan requirements and a history of the Monroe County LWRMP. It includes citizen involvement, relationship to other resource plans, and county approval information.

➤ County Characteristics

This section provides information on Monroe County, including location, size, and population, geography and soils, surface water resources, and land use trends.

➤ Resource Assessment

The resource assessment section summarizes cropland and gully erosion issues, storm water and construction sites, streambank erosion, fish habitat, animal waste issues, nutrient management, woodland, wetlands, invasive plants, and watershed rankings and Basin Plan recommendations.

➤ Goals, Objectives, & Actions

This section details the resource concerns and priorities in Monroe County and planned activities to address those issues.

➤ NR 151 Agricultural Performance Standards

Wisconsin's rules to control polluted runoff are summarized, along with Monroe County's plans to address those issues.

➤ Monitoring and Evaluation

This section contains existing and planned efforts to monitor and evaluate the status of resource issues in the county.

➤ Information and Education Strategy

A summary of a multi-agency effort to educate the public on natural resource issues is included in this chapter.

➤ Coordination

This section discusses the various programs, rules, and ordinances that are used in Monroe County to meet the goals of this plan.

Chapter One -Introduction

Background: Monroe County prepared its' initial LWRMP in 1999 in response to Wisconsin Act 27 and 9. The first revision was approved in 2005. Since that time, several changes and trends have taken place that impact resource management, including use value assessment, NR 151 rules, comprehensive planning, and passage of the Working Lands Initiative.

Plan Development and Public Participation: Monroe County received plan input from agency staff and a citizen group representing a cross-section of Monroe County. The Monroe County Land Conservation Committee, attended by cooperating agency staff, discussed the plan 3 times during publically noticed meetings. Citizens who agreed to provide input were personally contacted by LCD staff between 2 and 5 times each. Information and a request for input were posted on the Monroe County government web site. Information gathered from planning meetings for the Monroe County Comprehensive Plan was also used since conservation was discussed extensively with the public at these sessions. A public hearing was held on the Land and Water Plan on August 17, 2010.

Relationship to Other Plans: Monroe County is unique in the fact that four DNR river basins drain the county. These basins are detailed in three State of the Basin Plans. Monroe County has completed two Nonpoint Watershed Plans, and Trout Unlimited funded a hydrologic assessment of the Kickapoo Watershed. A plan for the management of Lake Tomah was also recently completed, as was the Monroe County Comprehensive Plan.

County Approval: The Monroe County LWRMP was approved by the Monroe County Board of Supervisors on _____ .

Chapter Two – County Characteristics

Location, Size, and Population: Monroe County (population 44,170) is 581,300 acres in size, including 60,000 acres in the Fort McCoy military installation, and 16,000 acres in the Central Wisconsin Conservation Area. The largest cities are Sparta and Tomah with populations of approximately 8,700 each.

Geography and Geology: All of Monroe County is in the nonglaciaded driftless area of southwest Wisconsin. Soils range from sandy soils in the northwest part of the county to silty and loamy soils in the south half of the county.

Surface Water Resources: All of the county's four major drainageways have their headwaters in the county, except the Black River. Monroe County has a limited number of lakes.

Land Use and Trends: The primary land use in Monroe County is agriculture, with dairy farming being the dominant type. Cranberries operations comprise a large portion of the landscape in the northeast part of the county. The numbers of larger, confined dairy operations are increasing, but the number of milk cows is decreasing. Corn and soybean acreage is increasing. The number of rural, non-farm residences has greatly increased.

As for land use regulations, the majority of Monroe County has historically shown low interest land use regulations and planning.

Chapter Three – Resource Assessment

Cropland and Gully Erosion: Various inventories and surveys in the past have shown county wide cropland soil loss rates at slightly above “T”. Current transect surveys have shown the rate decreasing. An increase in row crop acreage and a decrease in forage crops makes conservation tillage more important. Because of Monroe County’s topography, gully erosion in the county is a significant concern.

Storm Water and Construction Sites: Construction sites have high sediment delivery rates, especially in areas of steep topography. Monroe County has seen an increase in rural construction, many of which have had no erosion control requirements in the past. Rules enacted at the state level requiring compliance with UDC for one and two family dwellings, and storm water permits for construction site over one acre, are addressing this issue.

Streambank Erosion: Streambank erosion in Monroe County has historically been a problem due to steep gradients, high stream velocities, and agricultural activities in the watersheds. Inventories show 30% - 40% of sediment loading to surface waters is from streambank erosion.

Fish Habitat: All watersheds in Monroe County have coldwater streams with populations of brook or brown trout. Monroe County has 92 miles of Class I and 114 miles of Class II trout streams. Monroe County works with a several agencies and a variety of funding sources to improve trout habitat in streams with improvement potential.

Animal Waste: A trend towards larger, confined dairy herds has resulted in fewer barnyard runoff issues and more land spreading problems. Two runoff events in the past 5 years have resulted in major fish kills.

Nutrient Management: Agency staff have spent available time and money attempting to increase the amount of land under a nutrient management plan. Lake Tomah has documented high phosphorus levels, although the reasons behind those high levels are not completely known. Monroe County’s many cranberry growers have increased their use of nutrient management.

Woodland: About 47% of Monroe County is wooded. The main resource concerns are pastured woodlots, land use practices that remove woodlands from proper management, and high-grade logging. Use Value Assessment has given landowners a tax incentive to pasture woodlots, but it has also increased the participation in the Managed Forest Law.

Wetlands: Monroe County has experienced a decline in the acreage and quality of wetlands. There is increased interest in wetlands restoration, mostly because of recreational interests and programs offering restoration opportunities. State and Federal mitigation and cross-compliance rules have also had a positive impact.

Invasive Plants: Invasive species are probably an old problem, but a relatively new concern to the public. Monroe County’s Invasive Species Working Group, a multi-agency partnership, provides educational efforts for species of concern to Monroe County.

Watershed Rankings and DNR Basin Plan Recommendations: Three completed Basin Plans provide data and recommendations for the four basins in Monroe County. These plans were reviewed with Cindy Koperski, DNR Program and Planning Analyst at La Crosse.

Chapter Four – Goals, Objectives, & Actions

The main resource concerns in Monroe County, in order of priority are:

1. Sediment delivery from cropland and construction sites
2. Runoff containing phosphorus from land spread manure
3. Sediment eroded from streambanks
4. Phosphorus and sediment contaminated runoff from barnyards and livestock feeding areas
5. Loss of farmland
6. Management of privately owned forest land
7. Destruction of wetlands
8. Control of invasive plant species

To address these concerns, goals are established to reduce sediment delivery to surface waters, reduce phosphorus runoff to surface waters, improve the cold water fishery, monitor and provide education on invasive plants, improve forest management on private lands, maintain or increase wetland acreage and quality, and assist with farmland preservation efforts.

Chapter Five – NR 151 Agricultural Performance Standards

NR 151 agricultural performance standards went into effect on October 1, 2002. The purpose of the rules is to control polluted runoff from farms and other sources. Monroe County will use the following implementation strategy and compliance procedures in assisting with the administration of these rules:

Information and Education: LCD, NRCS, and UWEX staff will use information and education in an effort to encourage voluntary compliance with NR 151. Tools used will be brochures, newsletters, direct mailings, web postings, talks at meetings, and individual contacts.

Priority Farm Identification: Priority farms for evaluations, I & E contacts, and implementation will be those located in watersheds draining to 303(d) waters, those in Water Quality Management Areas, and those participating in Farmland Preservation.

Compliance Determinations: Compliance determinations will be made using existing data and will usually involve an on-site investigation. NR 151 evaluation and implementation information will be tracked using the county's Geographic Information System.

Enforcement: Enforcement of NR 151 violations will be coordinated with local DNR officials.

Appeals: Persons may appeal decisions made by the Monroe County LCD by requesting an appeal with the Monroe County Land Conservation Committee.

Chapter Six – Evaluation and Monitoring

Geographic Information System (GIS): In addition to tracking NR 151 information, conservation practice data and permit data are tracked using GIS technology.

Cropland Transect Survey: Monroe County conducts an annual cropland transect survey for the purpose of determining cropland soil loss rates and changes in conservation tillage utilization.

Water Quality Monitoring: Several agencies and private groups are involved in water quality monitoring efforts that can be used to assess existing conditions, predict success of planned practice installation, and determine the actual effectiveness of installed best management practices.

Annual Accomplishment Reports: Monroe County will prepare annual financial and accomplishment reports as required by rule.

Chapter Seven – Information and Education

An information and education program implemented by all local, state, and federal cooperating agencies will be used to inform the public about pollution problems, rules and regulations, and programs and resources available to address problems.

Chapter Eight – Coordination

Local, state, and federal agencies and private groups with resource responsibilities in Monroe County have a good history of cooperation that has resulted in getting the most done for the money available. Programs and resources from USDA, DNR, DATCP, USFWS, Fort McCoy, Monroe County, and private conservation groups are used to address resource issues.

Work Plan

As stated in Chapter 4, the main resource concerns in Monroe County are sediment delivery (from cropland, gullies, streambanks, and construction sites), and phosphorus delivery (from cropland runoff, barnyard runoff, and winter spread manure). Therefore the high priority work plan activities for Monroe County are: 1) reduce sediment delivery to surface waters of Monroe County; 2) reduce phosphorus runoff to surface water of Monroe County.

Comments or suggestions should be directed to the Monroe County Land Conservation Department, 820 Industrial Drive, Suite 3, Sparta WI 54656. Further contact information is available on the Monroe County government web site at <http://www.co.monroe.wi.us>.

The Monroe County Land and Water Resources Management Plan was prepared with the advice and assistance of the following individuals:

CITIZENS ADVISORY COMMITTEE

<u>Name</u>	<u>Occupation</u>	<u>Associations</u>
Laurence Johns	registered land surveyor	
Dennis Hubbard	farmer	former Co. Bd. member, township chair
Kim Mello	retired wildlife biologist, Fort McCoy	member, Lake Tomah Association
Dave Olson	agronomist, private consultant, retired UWEX agent	
Stan Brownell	mason contractor	Monroe Co. Conservation Congress
Mark Pierce	realtor	
Gene Degenhardt	retired implement dealer	Chair, Norwalk Rod & Gun
Simon Wells	farmer	former Co. Bd member, township treas.
Larry Revels	county landowner, quarry operator	
Alan Roof	rural landowner	

TECHNICAL ADVISORS

Dave Vetrano	Fisheries Biologist, Wisconsin DNR
Cindy Koperski	Water Quality Biologist/Planner, Wisconsin DNR
John Noble	Fishery Biologist, Fort McCoy
Greg Wheeler	District Conservationist, NRCS
Kevin Schilling	County Forester, Wisconsin DNR
Alison Elliott	Zoning Administrator, Monroe County
Bill Halfman	Ag Agent, Monroe County UW-Extension
Mark Mulder	County Executive Director, Monroe County FSA
John Mehtala	Monroe County Land Information Officer

The Monroe County Land & Water Resource Management Plan was prepared by the Monroe County Land Conservation Department under the direction of the Monroe County Land Conservation Committee.

Monroe County Land Conservation Committee

Gail Chapman, Chair
 James Kuhn
 Dave Wagner
 James Schroeder
 Adam Hayden

Monroe County Land Conservation Department

Al Hoff, County Conservationist
 Bryce Richardson, Soil & Water Conservationist
 Bob Micheel, Soil & Water Conservationist

Chapter One – Introduction

BACKGROUND

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

Monroe County had its' initial LWRM plan approved by the Land and Water Conservation Board in April of 1999. The first revision was approved in October of 2005. This is the second revision of the original plan. Since completion of the 1999 plan, several laws, rules, and land use trends have impacted resource management in Monroe County.

- Use Value Assessment continues to impact resource decisions being made by landowners.
- NR 151 created runoff performance standards and prohibitions.
- Monroe County completed the implementation of 2 Nonpoint Source Priority Watersheds (Lake Tomah and the Middle Kickapoo River).
- The conversion of farms from dairy to cash cropping, and the larger and expanded dairies have led to increased competition for available cropland.
- A considerable amount of agricultural and forested land is now being used for rural residences and recreational property, increasing the chances for conflicts between producers and the rest of the public.
- Invasive species, especially plants, are an increasing concern.
- Monroe County passed a non-metallic mining reclamation ordinance that requires reclamation of all active quarries.
- With the passage of the Working Lands Initiative, Monroe County landowners will no longer be eligible to participate in the Farmland Preservation program by signing new agreements.
- Monroe County and local units of government have completed "Smart Growth" plans, written to guide officials when making decisions on land use issues.

PUBLIC PARTICIPATION

In addition to the assistance of technical and administrative staff from cooperating local, state, and federal agencies, citizen members of the county were asked to provide input to this plan revision. A group of citizens representing a cross-section of county residents was contacted and asked to complete a survey and/or provide opinions to staff. A request for input to the plan was available on the Monroe County government website.

Focus group meetings held during the preparation of the Monroe County Comprehensive plan were also a good source of citizen input. These focus groups addressed many of the issues relating to this plan revision (see page 25A in appendix).

In addition to the survey and personal correspondence with the citizen members listed, Monroe County staff and cooperating agency staff have had many informal discussions with the public

concerning Monroe County resource issues. These discussions are taken into consideration when decisions are made on resource management priorities. The draft plan was reviewed by citizen advisors and agency staff.

RELATIONSHIP TO OTHER PLANS

Several resource management plans have been previously developed that have a relationship to this plan. Data from these plans was reviewed in the preparation of the Monroe County LWRM plan:

1. State of the Basin Plans, Wisconsin DNR.

These reports provide an overview of land and water resource quality in the basin and outlines actions to take to address problems

- The State of the Lower Wisconsin River Basin, 2002
website - <http://dnr.wi.gov/org/gmu/lowerwis/lwbasinplan.html>
- The State of the Bad Axe – La Crosse River Basin, 2002
website - <http://dnr.wi.gov/org/gmu/balax/basinreport.html>
- The State of the Black-Buffalo-Trempealeau Basin, 2002
website - <http://dnr.wi.gov/org/gmu/bbt/basinplan/basinplan.html>

2. Monroe County Farmland Preservation Plan, 1982.

This plan was prepared for the purpose of identifying important farmlands and to aid in the effort to protect farmlands by enabling farmers to participate in the Farmland Preservation Program. This plan is scheduled for revision 2013, a requirement of the recently enacted Working Lands Initiative.

3. Monroe County Soil Erosion Control Plan, 1988

This plan was written to meet the requirements of Chapter 92 of Wisconsin Statutes. The plan identifies areas where soil erosion standards are not being met and identifies procedures and priorities for controlling erosion.

4. Hydrologic Assessment of the Kickapoo Watershed, Southwestern Wis., 1998

This plan was written by the Wisconsin Geological and Natural History Survey and the UW Department of Geological Engineering for the Trout Unlimited Home Rivers Initiative project in the Kickapoo Watershed. The report provides an assessment of the hydrologic conditions in the watershed and makes recommendations for improvement.

5. Nonpoint Watershed Control Plans

These plans were written to provide guidance for the implementation of nonpoint watershed projects in the county.

- Nonpoint Source Control Plan for Lake Tomah, 1994
The water quality objectives of this plan were to:
 - a. reduce sediment delivery from upland sources by 60%
 - b. reduce sediment tonnage from streambanks by 70%
 - c. reduce organic pollution from livestock waste by 75%
 - d. high priority landowners should implement 590 plans

- Nonpoint Source Control Plan for the Middle Kickapoo River, 1991
The water quality objectives of this plan were to:
 - a. reduce sediment delivery from upland sources by 50%
 - b. reduce sediment tonnage from streambank sites by 60%
 - c. reduce organic pollution from livestock wastes by 60%
 - d. high priority landowners should implement 590 plans

6. Monroe County Comprehensive Plan

This plan was written to meet the state’s “Smart Growth” legislation. It is intended to guide elected officials and staff when making land use decisions.

Web site: <http://www.co.monroe.wi.us/> , under Zoning Department

7. Lake Tomah Management Plan

This plan, completed in 2009, was prepared by agency staff and Tomah Lake Committee members. The plan defines goals and activities to improve attributes of Lake Tomah.

COUNTY APPROVAL

The Monroe County Land Conservation Committee held a public hearing on the Monroe County LWRM plan on August 17, 2010.

The Monroe County Land and Water Resource Management Plan was reviewed and approved by the Monroe County Board of Supervisors on _____.

Chapter Two – County Characteristics

LOCATION, SIZE, AND POPULATION

Monroe County, established in 1854, is located in west central Wisconsin and is bordered on the west by La Crosse County, on the south by Vernon County, on the east by Juneau County, and on the north by Jackson County. The county is approximately 33 miles from east to west and 30 miles across from north to south. The total area is approximately 581,300 acres, or 908 square miles. The population in 1980 was 35,074, rising to an estimated 44,170 in 2008. Sparta (8,800) and Tomah (8,700) are the largest cities. Sparta, located in the west-central part of the county, is the county seat. Twenty-four townships make up the county. The Fort McCoy Military Reservation is located in parts of six townships and encompasses 60,000 acres. The Central Wisconsin Conservation Area, owned primarily by the U.S. Fish and Wildlife Service (USFS) and managed cooperatively by USFWS and Wisconsin DNR, is located on 16,000 acres of Scott Township.



GEOGRAPHY AND GEOLOGY

All of Monroe County is in the nonglaciaded driftless area of southwestern Wisconsin. It consists mostly of a deeply dissected bedrock plateau that is mantled with loess or residuum of bedrock, or both. Most of Monroe County is underlain by sandstone capped with a layer of dolomite limestone. The ridgetops are moderately broad and highly dissected. The ridgetop elevations in the county range from about 1,350 feet to about 1,450 feet. The valleys are short, have mostly very steep sides and are underlain by sandstone. The valleys are from 300 feet to 400 feet below the ridgetops.

The northeastern and east-central parts of the county are part of the lake basin of Glacial Lake Wisconsin. The basin consists mostly of sand and clay deposits that range widely in thickness. Relief in this glaciaded part of the county is very mild compared to the rest of the county. See Map 2 on page 5 for a general soils map of Monroe County, and the shaded relief map on page 11-A of the appendix for a better idea of the topography of the county.

SURFACE WATER RESOURCES

All of the major drainageways in Monroe County have their headwaters within the county, with the exception of the Black River in the northwestern corner. The La Crosse and Little La Crosse Rivers drain much of the west-central part of Monroe County. The Lemonweir and Little Lemonweir Rivers drain much of the eastern part of the county. The Baraboo River and Seymour Creek drain the southeastern corner of the county. The Kickapoo River drains the south-central part of the county. The Kickapoo, La Crosse, Baraboo, and Lemonwiew Rivers all originate in Monroe County, a very unique feature. Map 3 on page 6 shows the watersheds and river basins of Monroe County. Following is a list of the basins that drain Monroe County:

- Black-Buffalo-Trempealeau – 80,531 acres
- Central Wisconsin –205,391 acres
- Lower Wisconsin – 98,027 acres
- Bad Axe – La Crosse – 197,364 acres

Except for cranberry flowages and 9 lakes and impoundments on Fort McCoy, Monroe County has very few lakes. The major ones are Lake Tomah (254 acres), Angelo Pond (53 acres), Wazeda Lake (36 acres), Perch Lake (33 acres), Monroe County Flowage (263 acres), and Tri-Creek Site 1 (23 acres). All of these are impoundments.

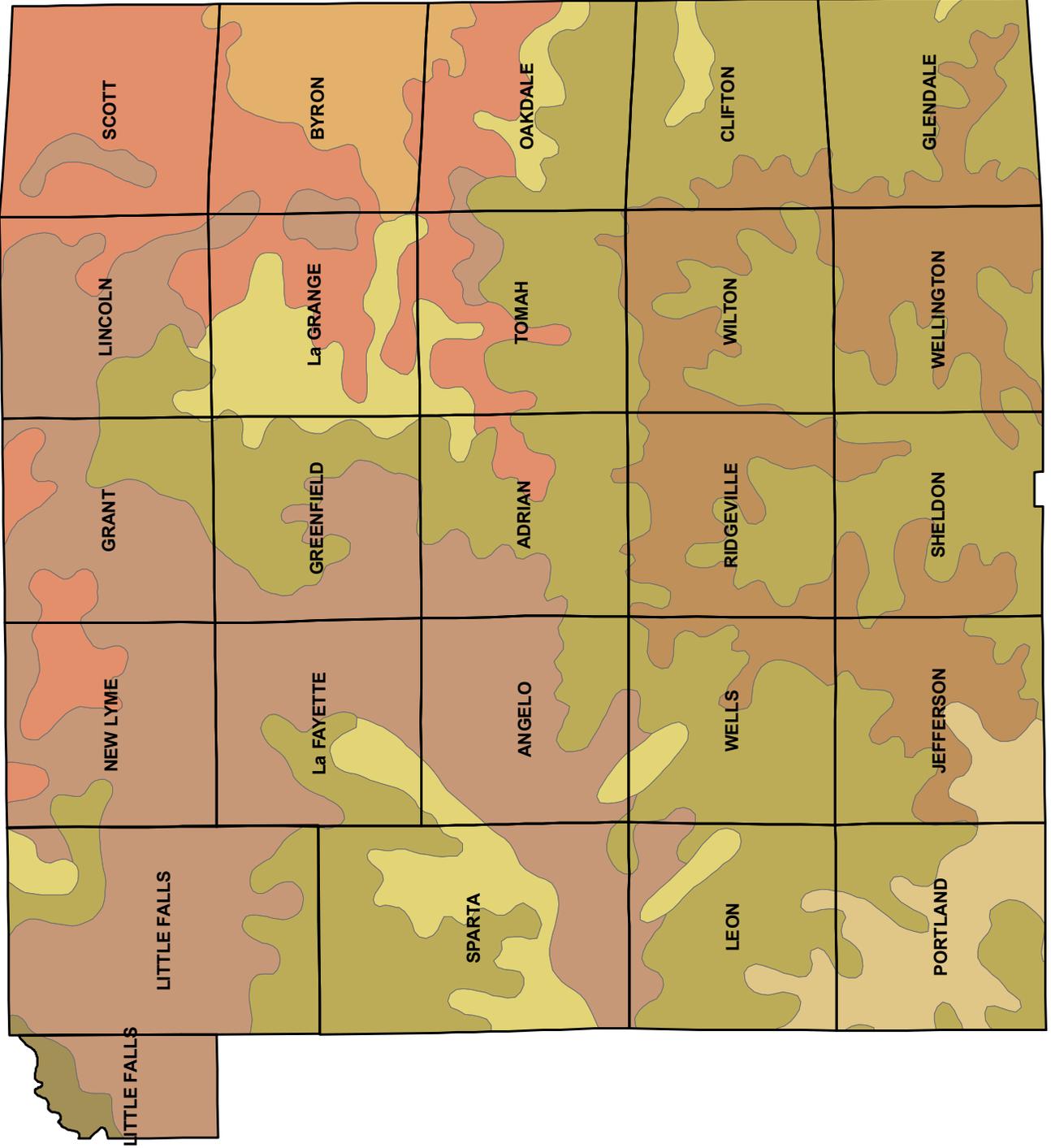
LAND USE AND TRENDS

Land use in Monroe County differs between the non-glaciaded and glacial Lake Wisconsin portions of the county. The non-glaciaded portions are used primarily for agriculture. The number of dairy farms is decreasing, but dairy is still the dominant form of agriculture in Monroe County. The glacial Lake Wisconsin portion of Monroe County (mainly the Beaver Creek/Juneau Watershed) continues to see an expansion of the cranberry industry. The land not used for cranberries is used for other types of agriculture and recreation land.

In comparison to other Wisconsin counties, Monroe County ranks 19th in milk production, 17th in forage production, and 30th in acreage of corn planted. Monroe County has the 2nd highest cranberry acreage in Wisconsin at approximately 3,654 acres in 2007. This acreage ranks Monroe County 17th nationally in cranberry acreage.

MAP 2

GENERAL SOILS MAP MONROE COUNTY, WI



Legend

Monroe Co. General Soil Map Units

ABSCOTA-GLENDORA-KALMARVILLE

Nearly level, flooded, moist & wet, sandy & loamy or silty, very deep soils on floodplains.

BILLETT-CURRAN-ETTRICK

Nearly level, moist, loamy or silty, very deep soils on terraces.

BOONE-TARR-IMPACT

Nearly level & steep & rolling, dry, sandy, very deep & moderately deep soils over soft bedrock on bedrock controlled uplands.

DELTON-WYEVILLE-PLAINFIELD

Nearly level, moist, loamy or silty, very deep soils on lake plains

FAYETTE-PALSGROVE-VALTON

Rolling, moist, loamy or silty, very deep soils on bedrock controlled uplands.

LA FARGE-URNE-NORDEN

Rolling & steep & very steep, moist, loamy or silty, moderately deep soils over soft bedrock on bedrock controlled uplands.

NEWSON-MEEHAN-FRIENDSHIP

Nearly level, wet & moist, sandy, very deep soils on outwash plains & moraines.

SEATON-GALE-TELL

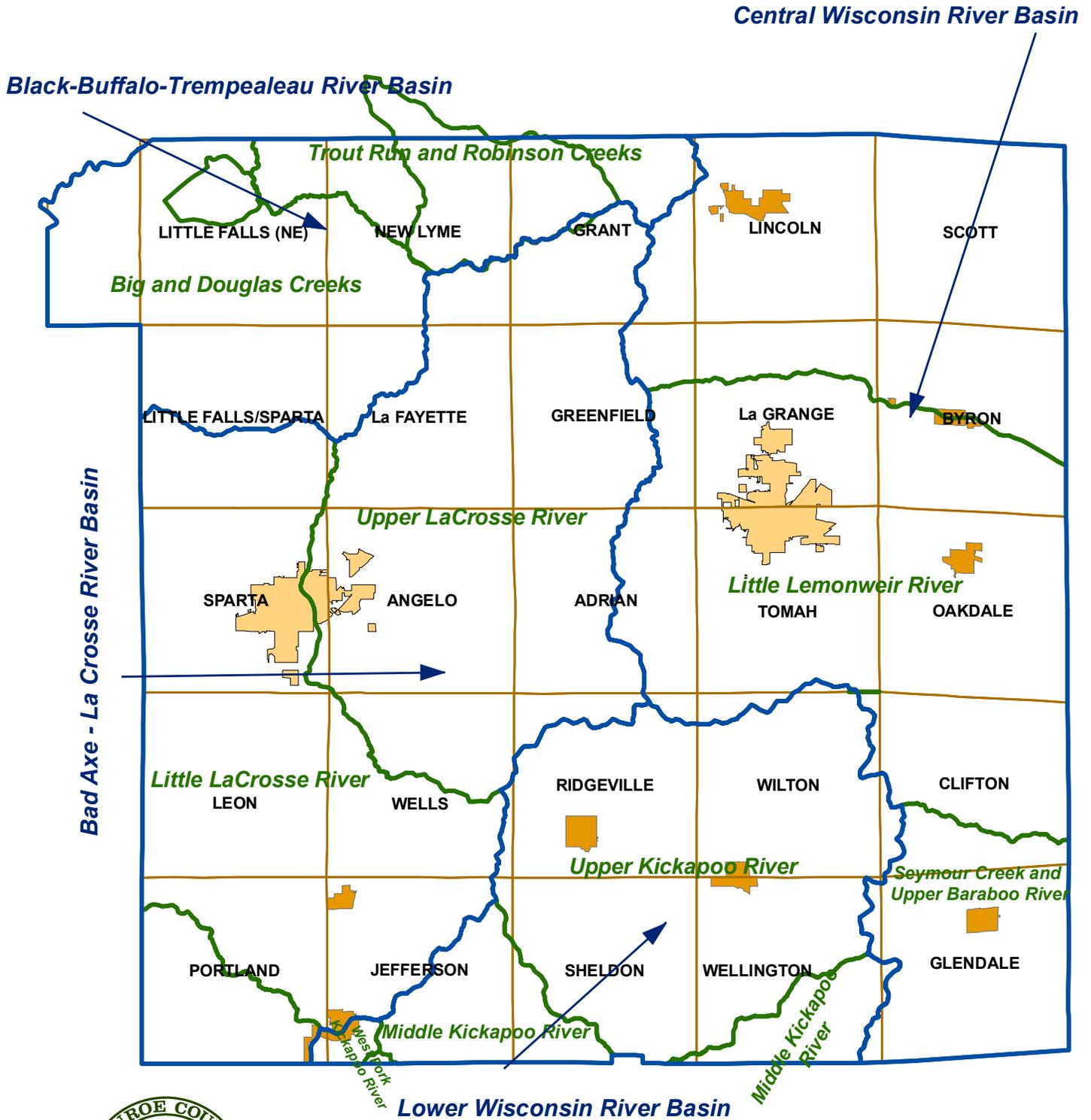
Rolling & steep, moist, loamy or silty, moderately deep & very deep soils over soft bedrock on bedrock controlled uplands.

VALTON-NEUWGLARUS-WILDALDE

Rolling & nearly level, moist, loamy or silty, very deep & moderately deep soils over soft bedrock on bedrock controlled upland.

Data Source:
State Soil Geographic Database (STATSGO)
USDA, NRCS

DNR RIVER BASINS and WATERSHEDS MONROE COUNTY



1 inch = 4.64 miles

Legend

- Monroe County DNR Basins
- Monroe County Watersheds
- PLSS Townships
- City
- Village

The USDA National Agricultural Statistics Service (NASS) reports the following trends in Monroe County between 1997 and 2007:

- The number of farms increased by 9%. During this same period, the number of farms at the state and national level decreased by 1%.
- The number of small farms (annual sales under \$2,500) increased 151% compared to a 36% increase statewide. This is attributable to many fruit, vegetable, and specialty crops being marketed at the Growers Produce Auction near Cashton and by Community Supported Agriculture groups, roadside sellers, and farmers markets in the county.
- Total cattle numbers decreased 3%.
- The number of milk cows decreased by (17%).
- The combined corn and soybean acreage increased 3% to 84,600 acres.

Statistics show a decrease in the number of milk cows, but milk production continues to rise. The increase in the number of farms can probably be attributed to increasing number of Amish farms and specialty farms. But some producers are moving forward with expansion plans. Since 2005, three Monroe County operators have been permitted under the Wisconsin Pollutant Discharge Elimination System (WPDES). Farms with 1,000 animal units are required to be permitted under WPDES. Several others are near the 1,000 animal unit threshold.

Many dairy farmers who wish to discontinue farming or are retiring are selling their land to recreational or commercial buyers. NASS reports show that between 2000 and 2008, 31% of the acreage in agricultural land sales without buildings has diverted land to non-ag use. This has resulted in 3,686 acres of ag land in Monroe County being converted to other uses during this time span. A high percentage of these buyers are from outside the county. This trend has dramatically increased the price of recreational land and has created potential land use problems. But the transfer of property to recreational users has also created many new opportunities for resource management that did not previously exist since these new owners are many time willing to make changes and improvements that the previous owners resisted.

Local units of government in Monroe County have historically shown low interest in land use regulations. Of the 24 townships in the county, only 11 have adopted county zoning (see Map 5, page 9). As of March, 2010, 12 of the 24 townships had submitted adopted Comprehensive Plans ("Smart Growth" plans) to the Wisconsin Department of Administration. At this time it is not know how many of the remaining townships will complete the planning process. Neither Monroe County or any of its' townships have adopted Livestock Siting, which was passed by the Wisconsin Legislature in 2003 and became an option to local units of governments in 2006.

Chapter Three - Resource Assessment

CROPLAND AND GULLY EROSION

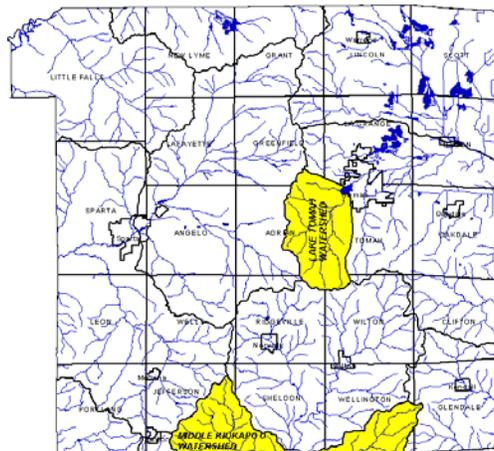
Monroe County has participated in several inventories and surveys designed to determine cropland soil loss rates. Stockham, Vandewalle & Gutheinz, Inc. prepared a soil loss inventory for Monroe County in 1988 to meet Chapter 92 requirements. At that time, the average sheet and rill erosion rate for cropland in Monroe County was determined to be 6.6 tons/acre/year.

Township erosion rates varied from 3.2 tons/acre year to 9.3 tons/acre/year. About 50% of Monroe County cropland (74,800 acres) was determined to be eroding at rates greater than the allowable rate.

Soil loss and sediment delivery inventories were completed as a part of the planning process for 2 Nonpoint Watershed projects in Monroe County. The *Nonpoint Source Control Plan for the Middle Kickapoo River Priority Watershed* was completed in 1991. The plan covers 36 square miles of land in Jefferson, Sheldon, and Wellington Townships in Monroe County (see map 4 on the next page). The plan used WIN, a computer model developed by the Wisconsin DNR, to determine sediment delivery rates to surface waters. The inventory results showed 6,068 tons of sediment delivered annually to streams from upland sources in the Middle Kickapoo River Watershed in Monroe County. Installation of best management practices in the Middle Kickapoo resulted in a reduction of 2,033 tons/year from upland sources and 621 tons/yr. from gully erosion.

The *Nonpoint Source Control Plan for the Lake Tomah Priority Lake Project* was completed in 1994. The 30 square-mile Lake Tomah Watershed is located in Tomah, Adrian, Ridgeville, Wilton, LaGrange, and Greenfield Townships (see map 4 on the next page). Sediment delivery to surface waters from upland sources was analyzed using the WINHUSLE computer model, an updated version of WIN. At that time, an estimated 1,115 tons of sediment per year were being delivered to surface waters of the Lake Tomah Watershed. Sediment delivery from gullies was also analyzed. An estimated annual load of 545 tons of sediment was being delivered to surface waters from gullies. Installation of best management practices as part of the Lake Tomah project has resulted in annual reductions of 879 tons of sediment from upland sources and 1,124 tons from gullies. The large reduction from gullies confirms staff speculation that gully sources contribute large loads of sediments to surface waters. The Lake Tomah Priority Lake project was completed in 2002.

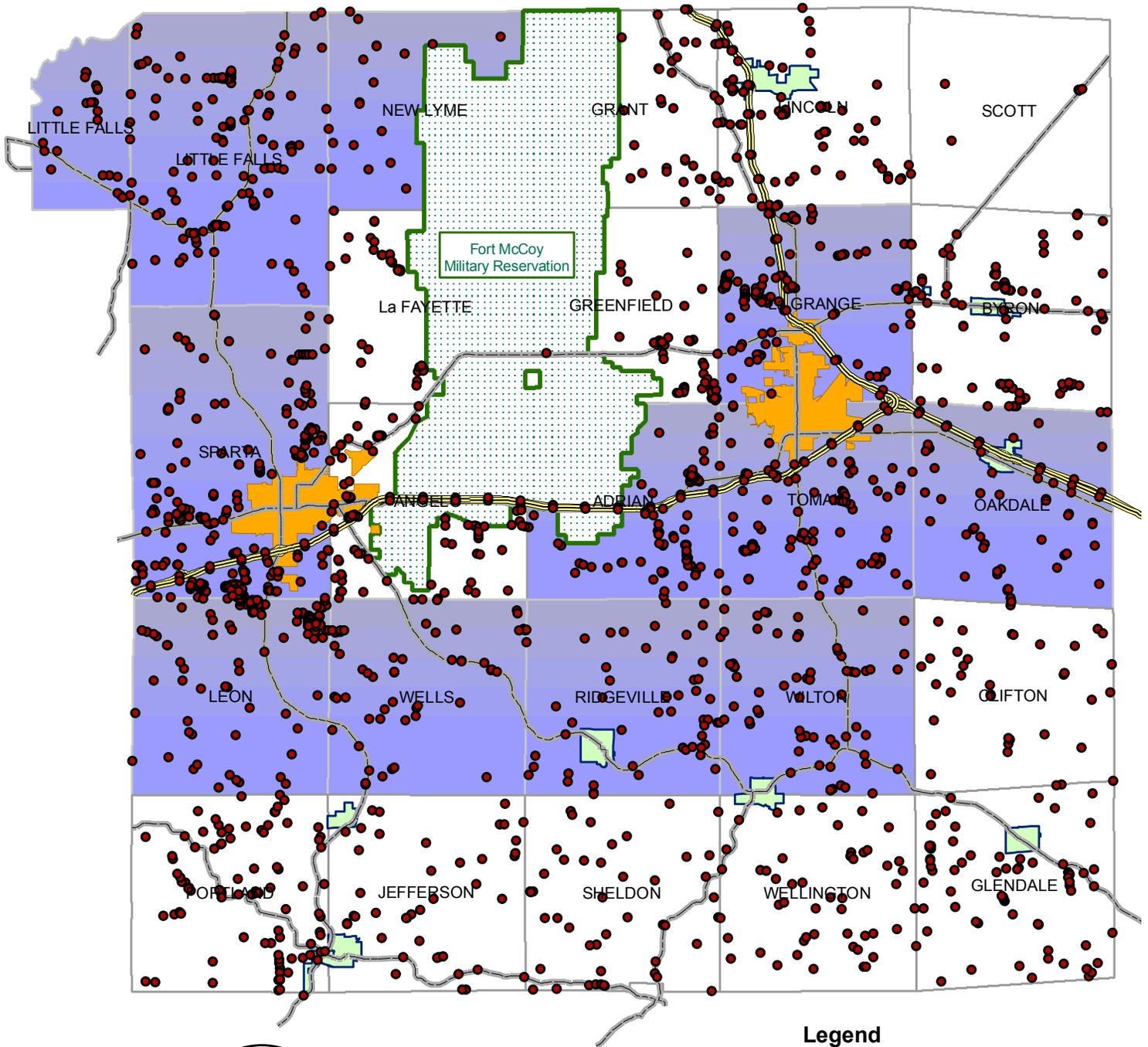
Since the completion of these plans, cropping practices and the type of crops grown have changed as discussed in the previous chapter.



Map 4 – Completed Nonpoint Watershed Projects, Monroe County

MAP 5

NEW RURAL ADDRESS IN MONROE COUNTY SINCE 2000



Legend

- Rural Addresses Since 2000
- No County Zoning
- County Zoning Adopted
- City
- Village
- State and Federal Roads
- Interstate Highways

Since 1999, the Monroe County Land Conservation Department has completed a transect survey of the county for the purpose of inventorying tillage methods, type and acreage of crops being planted, crop residue cover, and average annual soil loss on a county-wide basis. This survey method is considered statistically reliable and is a good tool to analyze soil loss issues. The chart below shows some of the survey results.

	1999	2001	2003	2005	2007	2009
Average annual soil loss in Tons/Acre/Year	4.6	4.6	5.5	4.8	2.1	2.4
Corn + Soybean acreage using no-till	13,478	13,338	17,249	27,361	25,442	32,590
Cropland acreage with erosion rates > 2T	21,748	23,495	41,637	38,622	7,718	11,150

The transect survey also computes soil loss rates by watershed. Following are the yearly results in tons/acre:

	1999	2001	2003	2005	2007	2009
Big/Douglas Creek	no pts.	2.6	4.4	1.8	0.3	1.3
Trout Run/Robinson	no. pts.	no pts.	no pts.	no pts.	1.6	1.3
Beaver Cr./Juneau	3.6	4.2	8.0	4.3	1.5	1.5
Little Lemonweir	5.0	6.1	4.9	4.2	1.9	1.9
Upper La Crosse	3.2	2.7	4.9	4.3	1.9	1.6
Little La Crosse	5.8	5.2	6.0	5.2	2.1	2.4
Coon Creek	9.6	11.2	13.5	5.4	4.1	6.5
West Fork Kickapoo	11.4	5.7	2.3	15.0	3.5	3.2
Middle Kickapoo	4.9	3.6	5.9	5.9	1.9	2.5
Upper Kickapoo	3.8	4.6	5.1	4.7	2.5	2.8
Seymour/Upper Baraboo	4.3	3.0	5.1	4.5	1.5	2.9

The survey results show an increase in the acreage of corn and soybeans, but only a slight increase in soil loss rates due to the increase in conservation tillage methods. The cropland acreage in two of the watersheds, West Fork Kickapoo and Coon Creek, are small which contributes to the sharp fluctuations in the results. Staff believes that average soil loss rates in these two watersheds are similar to the rest of the county.

As discussed above, the extent of gully erosion in Monroe County is difficult to assess. Inventories completed for the *Nonpoint Source Control Plan for the Middle Kickapoo River Priority Watershed* estimated that 30% of the sediment delivered to surface waters was from gullies. The gully inventory was done using an “average size and frequency of occurrence” method. Monroe County staff believes this to be a conservative estimate. The Middle Kickapoo inventory found that many of the landowners controlling upland erosion of their fields are not controlling gullies on their property.

STORM WATER and CONSTRUCTION SITES

Very little data specific to Monroe County exists for assessing sediment delivery from construction sites. However, DNR estimates an average construction site erodes 30 tons/acre of

sediment to waterways. Due to the high delivery rates, construction sites are a large source of the sediment that pollutes Wisconsin waterways.

The State of Wisconsin has taken the following actions to address construction site erosion and storm water runoff problems:

- On August 1, 2004, the DNR received authority under NR 216, Wisconsin Administrative Code, to require landowners of construction sites with one acre or more of land disturbance to obtain a construction site storm water runoff permit. Under subchapter III of NR 216, Wis. Adm. Code, a notice of intent shall be filed with the DNR by any landowner who disturbs one or more acres of land. This disturbance can create a point source discharge of storm water from the construction site to waters of the state and is therefore regulated by DNR. Agriculture is exempt from this requirement for activities such as planting, growing, cultivating and harvesting of crops for human or livestock consumption and pasturing or yarding of livestock as well as sod farms and tree nurseries. Agriculture is not exempt from the requirement to submit a notice of intent for one or more acres of land disturbance for the construction of structures such as barns, manure storage facilities or barnyard runoff control systems. (See s. NR 216.42(2), Wis. Adm. Code.) Furthermore, construction of an agricultural building or facility must follow an erosion and sediment control plan consistent with s. NR 216.46, Wis. Adm. Code and including meeting the performance standards of s. NR 151.11, Wis. Adm. Code.

An agricultural building or facility is not required to meet the post-construction performance standards of NR 151.12, Wis. Admin. Code.

Local municipalities can apply to DNR to fulfill the technical and administrative requirements of this rule (authorized local program). These rules and standards are currently enforced by DNR in Monroe County. Additional information and forms can be found at <http://dnr.wi.gov/runoff/stormwater.htm>

- Since January 1, 2005, state statutes require all municipalities to adopt and enforce the requirements of the Uniform Dwelling Code (UDC) for one and two family dwellings. The UDC is administered by the Wisconsin Department of Commerce. Part of the UDC requires planning, installation, and inspection of erosion control practices, no matter the size of the construction site. Monroe County declined to participate in the UDC inspection process, leaving the responsibility to local municipalities. Most of them have contracted with certified private inspection agencies to fulfill the requirements of the rule. At this point it is not clear how well the contracted inspectors are enforcing the erosion control requirements of the UDC.

STREAMBANK EROSION

Because of the topography of Monroe County, sediment from eroding streambanks is a major contributor to the degradation of Monroe County surface waters. The Middle Kickapoo River watershed inventory shows that 34% of the sediment loading to surface waters from all sources is from streambank erosion. The Lake Tomah watershed inventory shows that 40% of the sediment loading from all sources is from streambank erosion. Monroe County staff believes

these figures would be consistent with all watersheds within the county except for the Beaver Creek/Juneau and Trout Run watersheds. These two watersheds have low stream velocities and less impact from agriculture. Many of the streams in these watersheds have cranberry flowages on them, and streambanks are sometimes impacted by fluctuations in flows caused by the flooding and draining of water at the cranberry operations.

Streambank erosion occurs naturally at many sites. It is caused by steep stream gradients, which result in high stream velocities. Sites not pastured for extended periods typically grow trees and other woody vegetation that replace dense grass cover. This results in more bare ground that erodes easier. Trees fall into streams and further accelerate the process.

Although streambank erosion occurs naturally, the problems are accelerated and intensified by land-use activities. In the Middle Kickapoo River Watershed, inventories showed that 66% of the degraded streambanks were impacted by agricultural activities. This is probably a reasonable figure to apply to the entire county. This inventory supported staff beliefs that cattle exclusion does not necessarily solve streambank erosion problems.

FISH HABITAT

All watersheds in the driftless areas of Monroe County contain coldwater streams with populations of brook and brown trout. The highest producing streams are located in the Coon Creek, LaCrosse, and Upper Baraboo Watersheds. There are currently 91.9 miles of Class I trout streams in Monroe County. Another 114.2 miles are classified as Class II. Class I streams are defined as high quality waters having sufficient natural reproduction to sustain populations of wild trout. All Class I streams are classified as Exceptional Resource Waters under NR 102, the administrative rules establishing water quality standards for Wisconsin surface waters. Rullands Coulee, originating in Portland Township, is listed as an Outstanding Resource Water under the classification system. Class II streams have some natural reproduction but require some stocking to sustain a sport fishery.

Since the Wisconsin Department of Natural Resources made Coon Creek a priority area for fish habitat improvement in the 1960's, sport fishing has become a growing industry in this area. Fish habitat improvement work in the Coon Creek watershed has been a great success, leading DNR, county, and private organizations to look at improvement possibilities for other streams in the region. From 1996-1999, Trout Unlimited administered a Home Rivers Initiative project in the Kickapoo Watershed. This project, the second nationally by TU, was intended to improve environmental conditions, raise public awareness of resource issues, and lay the groundwork for continuing efforts. Trout Unlimited successfully assisted with the establishment of a community group called Valley Stewardship Network for the purpose of leading educational efforts in the watershed and providing water quality monitoring efforts.

The Trout Unlimited Kickapoo Watershed Project funded a study called *Hydrologic Assessment of the Kickapoo Watershed, Southwestern Wisconsin*. The Wisconsin Geological and Natural History Survey (WGNHS) and the University of Wisconsin Department of Geological Engineering (UW) did the study. The goals of this study were to (1) characterize the regional and local groundwater flow systems, spatial and temporal variations in base flow and temperature, and the distribution and movement of fine sediment; (2) identify areas that are

critical to stream habitat quality; and (3) develop quick and inexpensive assessment methods that can be used by land management agencies and local citizens to monitor the condition of the watershed. The study made the following recommendations: (1) due to water temperature concerns, construction of spring ponds should be discouraged; (2) groundwater recharge should be maintained by protecting wooded hillslopes (discourage development on these sites); (3) control sources of sediment, focused on streambanks, barnyards, pastures, and cultivated fields; and (4) target a variety of geologic settings for stream restoration projects in order to restore a variety of habitats. The study concludes that the results should apply to nearby watersheds with similar geology and topography but recommends collecting base flow and temperature data in other watersheds. It also recommends a study on how the volume of fine sediment stored in stream channels is changing.

Portions of the Upper LaCrosse River Basin have also been the recipients of surface water monitoring efforts. Fishery biologists at the Directorate of Public Works, Environmental Division - Natural Resources Branch at Fort McCoy have collected water quality data on Silver and Tarr Creeks since 1993. Characteristics being monitored include turbidity, temperature, dissolved oxygen, and flow. Water samples are also being analyzed for nutrients and fecal coliform. In addition, IBI data (Index of Biotic Integrity) is being collected for Fort McCoy streams. This biological data is an assessment of the fish community and is useful in determining limiting factors for a fishery as well as assessing the potential for improvement. In summary, test results from Fort McCoy's testing shows good water quality, low nutrient and pesticide levels, and high turbidity and total suspended solids at certain sites.

In recent years, Monroe County has worked closely with fishery staff at Fort McCoy on trout habitat and water quality issues near Fort McCoy. This partnership has been valuable for completing trout habitat work, completing stream monitoring, and seeking solutions to water quality issues. Since the development of the initial version of the Monroe County Land and Water Resource Management plan in 1999, Fort McCoy, Monroe County, DNR, US Fish and Wildlife Service, NRCS, and local organizations partnered to complete fish habitat improvement in the Coles Valley Creek watershed. This partnership resulted in a re-classification of Coles Valley Creek to a Class I trout stream.

In addition to the priority area established by Trout Unlimited, the DNR has established several fishery areas in Monroe County. Among those are the Little LaCrosse River system, Farmers Valley Creek, Big Creek, and Rullands Coulee Creek (tributary to Coon Creek). These areas are priority areas for stream habitat improvement using Trout Stamp money. In order to use this money, land must be available for public use, either through easements or purchase.

ANIMAL WASTE

Pollution problems from animal wastes originate from two principal sources; barnyard runoff and land spreading of manure (primarily winter spreading on steep slopes or fields in flood plains). Runoff from barnyards and land-spread wastes can pollute surface and groundwater with bacteria, sediment, ammonia and nutrients. Barnyards inventoried for the Middle Kickapoo River Watershed project were found to contribute an average annual phosphorus load of 14.8 lbs. The Lake Tomah inventory showed an average phosphorus load of 55.8 lbs. The difference in

the loading can be attributed to larger farms located on or close to the stream channels. Inventories were conducted using the BARNY computer model.

Since the completion of the inventories for the 2 watershed projects, many farms have expanded their operations, resulting in fewer barnyards and more confined herds. The result of this trend is fewer barnyard runoff issues, but more land spreading problems. In Monroe County, the majority of the dairy expansions are located in the Lower Wisconsin and Bad Axe – La Crosse Basins. In the past 5 years, there have been 2 major fish kills in the area resulting from manure runoff. One was in Jersey Valley Lake in Vernon County and the other in Dutch Creek in La Crosse County. Monroe County producers were contributors to both incidents.

The Valley Stewardship Network, a local nonprofit group (see <http://www.kickapooovsn.org/>) conducted surface water testing in the Kickapoo River watershed during the summer of 2004. Tests were done for e-coli bacteria. Of the 36 samples taken in Monroe County between August 15 and September 29, 32 samples tested above 400 CFU/100 ml. (EPA recommends using 235 CFU/100ml. for swimming advisories). Sixteen of the tests were above 2,000 CFU/100 ml. (levels above 1,000 CFU/100 ml. are now considered unsafe for swimming by EPA). The lab processing the tests (Leuther Laboratories) also used a technique to track the source of fecal bacteria present in the sample. Except for one site below a municipal wastewater treatment plant which was positive for human bacteria, the rest of the tests were positive for cows (or similar species such as goats, sheep, and deer).

NUTRIENT MANAGEMENT

Historically, proper nutrient management has not been a high priority with most dairy farmers. Animal waste has been looked upon as something that needs to be disposed of, not as an asset. Over-application of nutrients can result in nutrients not being used by plants. The nutrients, primarily nitrates or phosphorous, can then end up in surface or groundwater. During the Middle Kickapoo River watershed inventory, well water samples were analyzed for nitrate contamination. The results showed 7.4% of the samples exceeded the state standard of 10 mg/l while 57.4% of the samples showed results between 2-10 mg./l. The same tests were completed in Lake Tomah. The results showed 28% of the samples exceeded the 10 mg/l standard and 56% of the samples were between 2-10 mg/l.

Well samples in Lake Tomah were also analyzed for triazine, a family of chemical compounds which contain the herbicide atrazine. Sample results showed 23% of the wells tested for atrazine had levels above the Preventive Action Limit of 0.3 µg/l. Detectable levels of atrazine were found in 47% of the wells tested. Atrazine prohibition areas are now in effect in portions of Adrian, Tomah, and La Grange Townships.

In the spring of 1991, the Nutrient and Pest Management Program (NPM) of the University of Wisconsin conducted a Farm Assessment Technique (FAT) survey in the Middle Kickapoo River Watershed. The FAT is an assessment of land users' nutrient and pest management practices. The intent of the assessment is to gain an understanding of what farmers are doing in the area of agri-chemical management, why they are using these specific management practices, and potential obstacles to adopting recommended Best Management practices. The survey results showed 38.9% of the farmers were grossly over recommended application rates for

nitrogen (more than 65 lbs/acre over). Another 19% were 10-65 lbs/acre over recommended nitrogen application rates. The survey also showed that 83.3% of the farmers were more than 40 lbs/acre over maintenance levels for phosphorus. The FAT made the following recommendations:

- Information and education programming should be focused on farmers and agri-business
- Whole farm nutrient management needs to be a priority. Place more emphasis on nitrogen management rather than structural solutions.
- Use of “at and below” label rates for pesticide application
- Base programs on known characteristics of farmers within watersheds
- Promote BMPs based on attitudes towards the practice

Since that study, Monroe County resource agencies have sponsored several nutrient management planning classes for farmers wishing to prepare their own nutrient management plan. In addition, a limited amount of cost-sharing has been available through the EQIP program administered by USDA, through funding provided to counties from Wisconsin DATCP, and through cost-sharing provided by Monroe County. This cost-sharing is for landowners wishing to hire private consultants to prepare nutrient management plans, or to participate in group planning sessions. These sessions have been held annually by the Farm Management instructor at Western Technical College.

Citizen concern with algae blooms in Lake Tomah prompted soil testing and groundwater testing in the Lake Tomah Watershed in 2003-2004. The purpose of the sampling was to determine phosphorus levels in the watershed. The soil tests revealed ag soils had an average phosphorus level of 40 ppm, while urban soils averaged 49 ppm. The statewide average for ag soils is 52 ppm, well above the 30 ppm considered the upper limit for corn production. The 22 groundwater tests in the watershed resulted in an average phosphorus level of 77 ug/l. The average level in Lake Tomah using 1998 data was 178 ug/l, considered extremely high. The average level in a Wisconsin impoundment is 65 ug/l. After a multi-year planning effort, the City of Tomah, Wisconsin DNR, and Monroe County have cooperated on a rehabilitation project in Lake Tomah. The project is designed to reduce phosphorus levels in the lake, improve fish habitat, and make Lake Tomah a better recreational resource.

A positive trend in the cranberry industry is the increased use of nutrient management planning. NRCS, through their statewide special allocation for the cranberry industry, has made cost-share money available for nutrient management planning that is being utilized by the growers.

WOODLAND

Of the 576,000 acres of land in Monroe County, approximately 273,000 acres (47.4%) are forested. Of this amount, 205,600 acres are owned by non-forest industry private owners (1996 Forest Inventory data). The major cover type in the county is oak-hickory (53.1%).

The major natural resource concern associated with woodland in Monroe County is pastured woodlots. Pastured woodlots result in increased runoff and more gully erosion. Watersheds with pastured woodlots are more susceptible to flash flooding, excess siltation in streambeds, and

streambank erosion. Middle Kickapoo River watershed inventory results showed that 47% of the woodlots in the Billings and Brush Creek watersheds were pastured. This is probably above the countywide average, but the problem exists throughout the county. The major pollution problems from grazed woodlands are in the south half of the county where the most intensive agriculture is located. Map 6 on page 17 shows the land cover types in Monroe County.

Since the implementation of Use Value Assessment, agricultural land is assessed according to four classifications, with pasture receiving the lowest assessed value. Grazed woodland is assessed as pasture, thus giving a landowner tax incentive to graze the woodlands. Since productive woodland has a high tax rate due to Use Value Assessment, it can also be argued that participation in the Managed Forest Law has increased due to this method of assessment.

Another problem identified by forestry staff in Monroe County is a practice called “high-grade logging”. This common occurrence is the practice of harvesting the best timber from a site and leaving the rest. This practice diminishes the stand’s productivity and potential by removing the best genetic stock.

Land use practices are also identified as a problem for forestry. Woodlands that are parceled off for rural home construction often result in woodlots being removed from commodity production. The timber in these parcels is often no longer managed for timber production. During the planning process for the Monroe County Comprehensive plan, residents identified the breaking up of large tracts of forest land as a major concern.

WETLANDS

As is the case statewide and nationally, Monroe County has experienced a decline in the number and quality of wetlands. The DNR wetlands inventory map for Monroe County shows 56,000 acres of wetlands (9.9% of the land area), the majority located along major stream corridors and in the Lemonweir and Beaver Creek watersheds in the northeast part of the county. Map 7 on page 18 shows the wetlands in Monroe County according to the DNR wetlands inventory.

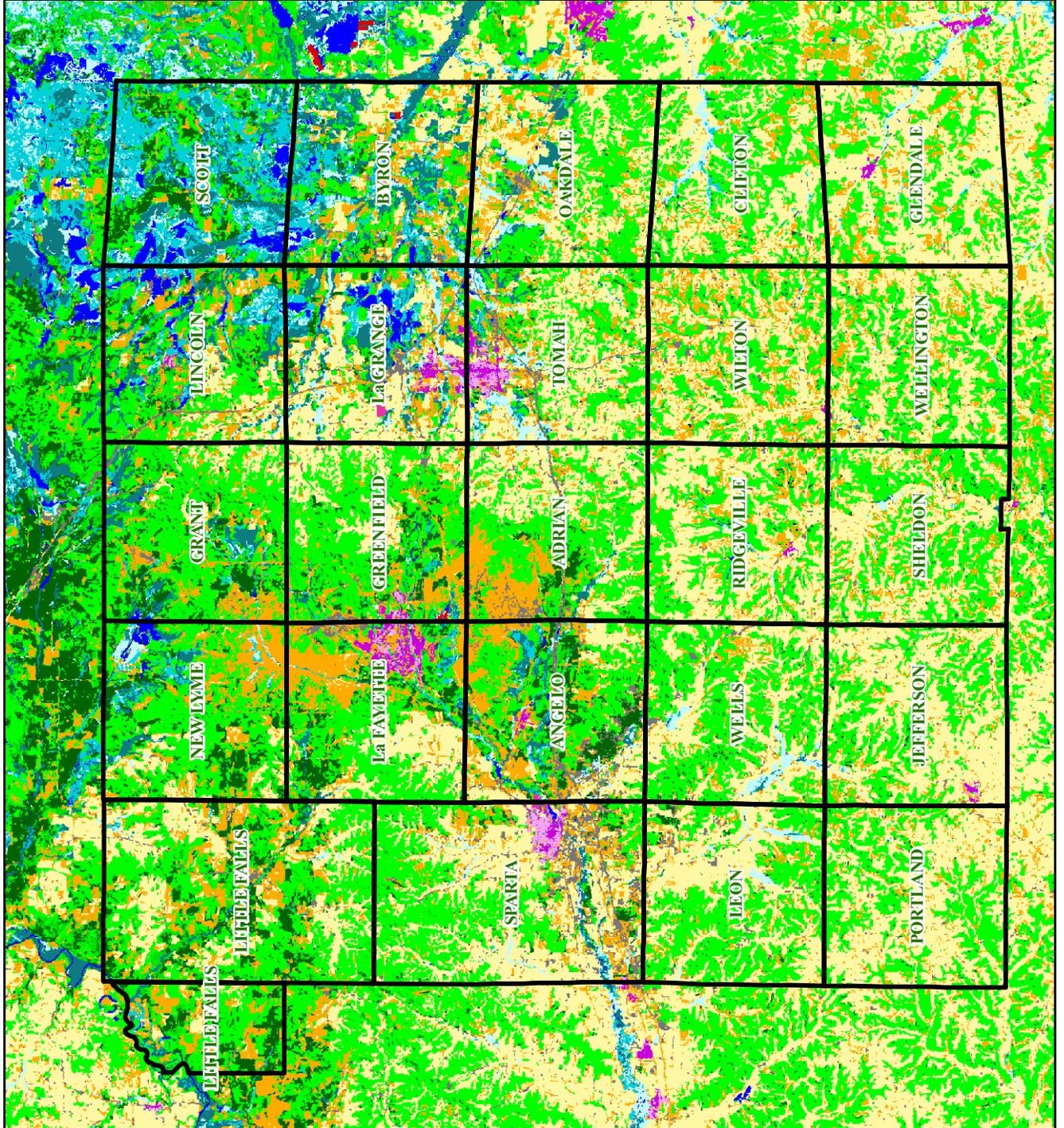
Construction of new and expanded cranberry beds has traditionally been done in wetlands. Now, however, new construction is frequently done in upland soil types, avoiding wetlands.

As more people purchase land in Monroe County for recreational uses, there has been an increased interest in the restoration of previously converted wetlands. State and federal programs, primarily the Wetlands Reserve Program (WRP) administered by NRCS and the Partners for Fish and Wildlife Program administered by USFWS, have been available to cost-share this type of restoration. The Conservation Reserve (CRP) and the (Conservation Reserve Enhancement Program (CREP) are also sources of funding for wetlands restoration activity. These programs are described in Chapter 8

The Wisconsin DNR and the US Army Corp of Engineers require mitigation when natural wetland sites are destroyed. Several mitigations have taken place in Monroe County during the past 15 years. In many cases, the mitigated wetlands are probably of lesser quality than the original wetland that was destroyed.

MAP 6

MONROE COUNTY, WI
Land Cover Map

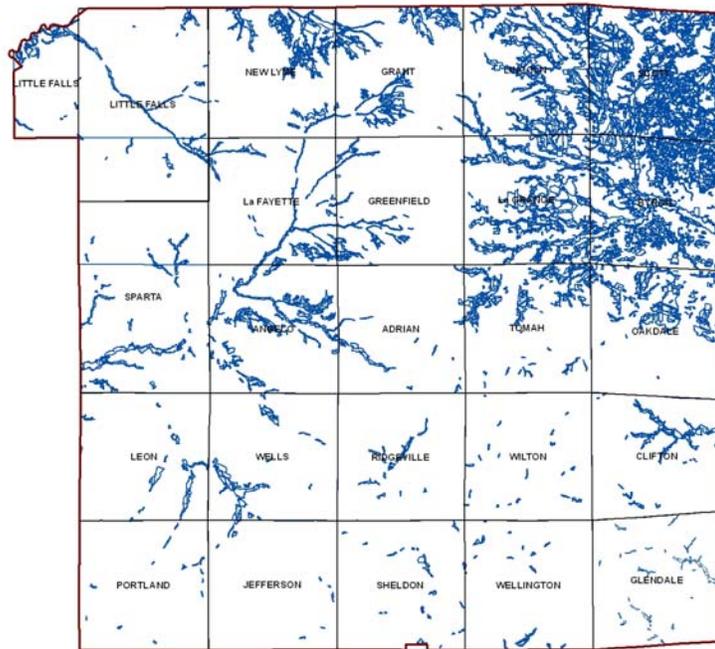


Land Cover Types

- High Intensity (Urban)
- Low Intensity (Urban)
- General Agriculture
- Herbaceous/Field Crops
- Cranberry Bog
- GRASSLAND
- Coniferous
- Broad-leaved Deciduous
- Mixed Deciduous/Coniferous
- OPEN WATER
- Emergent/Wet Meadow
- Lowland Shrub
- Forested
- BARREN
- SHRUBLAND

1 inch = 5 miles

Source: WISCONSIN LANDSAT
Wisconsin DNR



Map 7 – Monroe County Wetlands

Because of a change in attitude concerning the value of wetlands, laws restricting the drainage of wetlands, and programs that encourage restoration, the wetland acreage in Monroe County has probably maintained or gained during the past 10 years. This is only speculation by staff, as no firm data is available.

INVASIVE PLANTS

Since the completion of the Monroe County LWRM plan in 1999, agency staff and Monroe County citizens have become more aware of and concerned with invasive plant species. This is due mostly to increased publicity on the subject. Under the leadership of the wildlife biologist at Fort McCoy, a working group was established in Monroe County in 1998 for the purpose of assessing the problems and educating the public on invasive plants. This group is comprised of representatives from a variety of county, state and federal agencies and local educators. The group has focused on issues relating to the major problem species in the county: Canada thistle, spotted knapweed, garlic mustard, purple loosestrife, leafy spurge, and buckthorn. These non-native plant species pose potential economic, health, ecological, and recreational problems. Educational brochures developed by the committee are available for viewing at by going to the Land Conservation Department page at <http://www.co.monroe.wi.us>.

WATERSHED RANKINGS and DNR BASIN PLAN RECOMMENDATIONS

Monroe County contains all or part of 11 watersheds as delineated by DNR (see map 3). These watersheds are part of 4 different river basins, managed as Geographic Management Units (GMUs) by DNR.

Under the Clean Water Act, states must submit 303 (d) lists (impaired waters lists) to the Environmental Protection Agency (EPA) for the purpose of developing Total Maximum Daily Loads (TMDLs).

The following table summarizes Monroe County watershed rankings and 303(d) list status (see map :

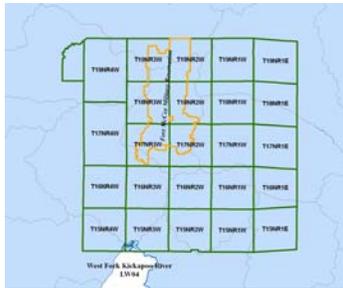
<i>Watershed Name</i>	<i>River Basin</i>	<i>NPS Ranking</i>	<i>NPS 303(d) List</i>	<i>Comments</i>
Beaver Creek/Juneau (LW28)	Central Wisconsin	Not ranked		
Little Lemonweir (LW29)	Central Wisconsin	Not ranked	Lake Tomah S. Fk. Lemonweir R.	impaired by phosphorus impaired by BOD, phosphorus
Big and Douglas Creeks (BR03)	Black-Buffalo-Trempealeau	High	Printz Creek Black River	impaired by sediment impaired by mercury, PCB's
Coon Creek (BL03)	La Crosse Bad Axe	High		trib. Rullands Coulee is ORW
Little La Crosse River (BL05)	La Crosse Bad Axe	High		drains to Lake Neshonoc (303, phos)
Upper La Crosse River(BL06)	Bad-Axe – La Crosse	High	Squaw Cr. (Ft. McCoy) Stillwell Cr. (McCoy) Cr. 23-13b (Ft. McCoy) Angelo Pond	drains to Lake Neshonoc (303, phos) impaired by temp (TMDL approved) impaired by sediment (TMDL approved) impaired by mercury
Upper Kickapoo River (LW06)	Lower Wisconsin	High		
Middle Kickapoo River (LW05)	Lower Wisconsin	High		completed nonpoint project
West Fork Kickapoo River (LW04)	Lower Wisconsin	High		
Trout Run / Robinson Cr. (BR04)	Black Buffalo Trempealeau	High	North Flowage (McCoy) Ranch Cr. @ Lost Lake (Mc Coy) Clear Creek	impaired by mercury impaired by mercury elevated water temps
Seymour Creek/Upper Baraboo (LW24)	Central Wisconsin	Medium		

Three Fort McCoy streams were identified as 303(d) eligible. Total Maximum Daily Loads (TMDL's) have been approved for Squaw Creek, 0.2 miles section below Squaw Lake, Stillwell Creek below a nearby cranberry marsh to the confluence of Tarr Creek, and Creek 23-12b. A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. This process will evaluate water quality trends and develop models as well as recommendations to improve water characteristics.

State of the Basin plans are complete for the 4 river basins in Monroe County. Monroe County has used these plan and consulted with DNR staff on resource priorities in the county. DNR staff and Monroe County LCD staff agree on the resource priorities in all the basins and watersheds. These plans make the following recommendations and observations:

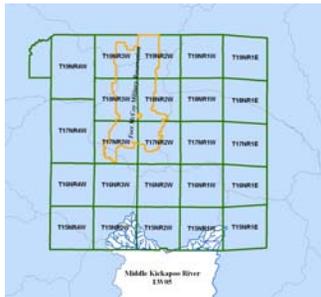
Lower Wisconsin River Basin (July, 2002 plan date)

West Fork Kickapoo River Watershed (LW04)



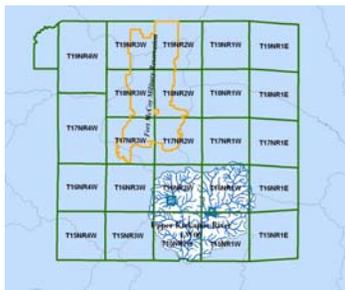
- DNR should consider Jersey Valley Lake (located in Vernon County with headwaters in Monroe County) a high priority to receive a planning grant and a lake protection grant. The plan notes that the watershed is 80% agricultural and there is evidence of excessive nutrients in the lake. This lake was the victim of a complete fish kill in March, 2005 that was likely caused by manure runoff. It is currently the site of a University of Wisconsin Discovery Farms monitoring project.

Middle Kickapoo River Watershed (LW05)



- DNR should resurvey Monroe County streams after the completion of the priority watershed project to document changes in stream conditions

Upper Kickapoo River Watershed (LW06)

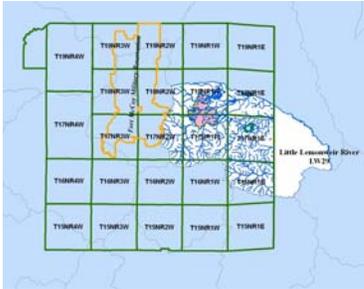


- DNR should perform continuous temperature monitoring to determine trout suitability
- The Tri-Creek PL-566 structure is plagued with algae blooms and aquatic plant growth and should be the target of a water quality assessment

Nonpoint source pollution is listed as a concern in all 3 watersheds.

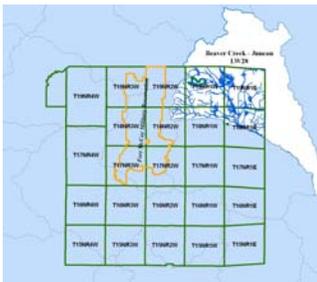
Central Wisconsin River Basin (July, 2002 plan date as part of the Lower Wisconsin plan)

Little Lemonweir River Watershed (LW29)



- Algae blooms in Lake Tomah are a problem. A restoration effort in Lake Tomah is in progress to address this issue
- The South Fork of the Lemonweir below Lake Tomah has high fecal coliform concentrations and low dissolved oxygen levels, resulting in listing this segment of stream as an impaired water.
- Lake Tomah is listed as impaired water due to high total phosphorus

Beaver Creek/Juneau Watershed (LW28)



- Large scale production of cranberries is a concern
- Alterations of wetlands is a concern
- Impoundments and ditching is a concern

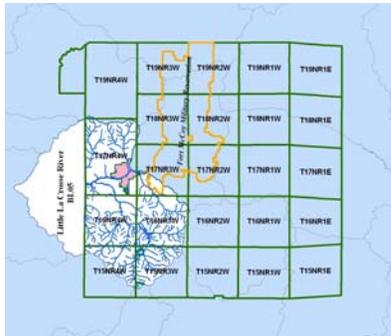
Seymour Creek & Upper Baraboo River Watershed (LW24)



- Fish and habitat surveys of Seymour Creek and the Baraboo River are needed to assess stream conditions.

Nonpoint source pollution is listed as a concern in the Little Lemonweir and Seymour Creek Watersheds.

Little La Crosse River Watershed (BL05)



- This watershed drains to Lake Neshonoc in La Crosse County, an impaired lake. Approximately 2/3 of the watershed is in Monroe County.
- DNR has purchased ownership and easements on property adjacent to Farmers Valley Creek and the Little La Crosse River system. Habitat restoration is ongoing on these streams.
- Updated fish and habitat surveys are needed on most of the trout streams in this watershed to assess conditions.

Upper La Crosse River Watershed (BL06)



- Approximately 57% of this watershed is within the Fort McCoy Military Reservation
- Resource management at Fort McCoy is critical to the water quality in this watershed. Fishery staff at Fort McCoy have been cooperating with DNR, NRCS, FWS, and Monroe County staff in a successful effort to improve streams and lakes in and around Fort McCoy.
- The La Crosse River State Fishery Area is within this watershed.
- Since 1999, Coles Valley Creek has been the target of habitat improvement work by an agency and private partnership that has led to its' reclassification to Class I trout water.
- Impoundments on trout streams are a concern. Angelo Pond, Perch Lake, and many impoundments in Fort McCoy are part of this watershed.
- Many of the streams in this watershed are impacted by sediment and lack of habitat.

Chapter Four – Goals, Objectives, & Actions

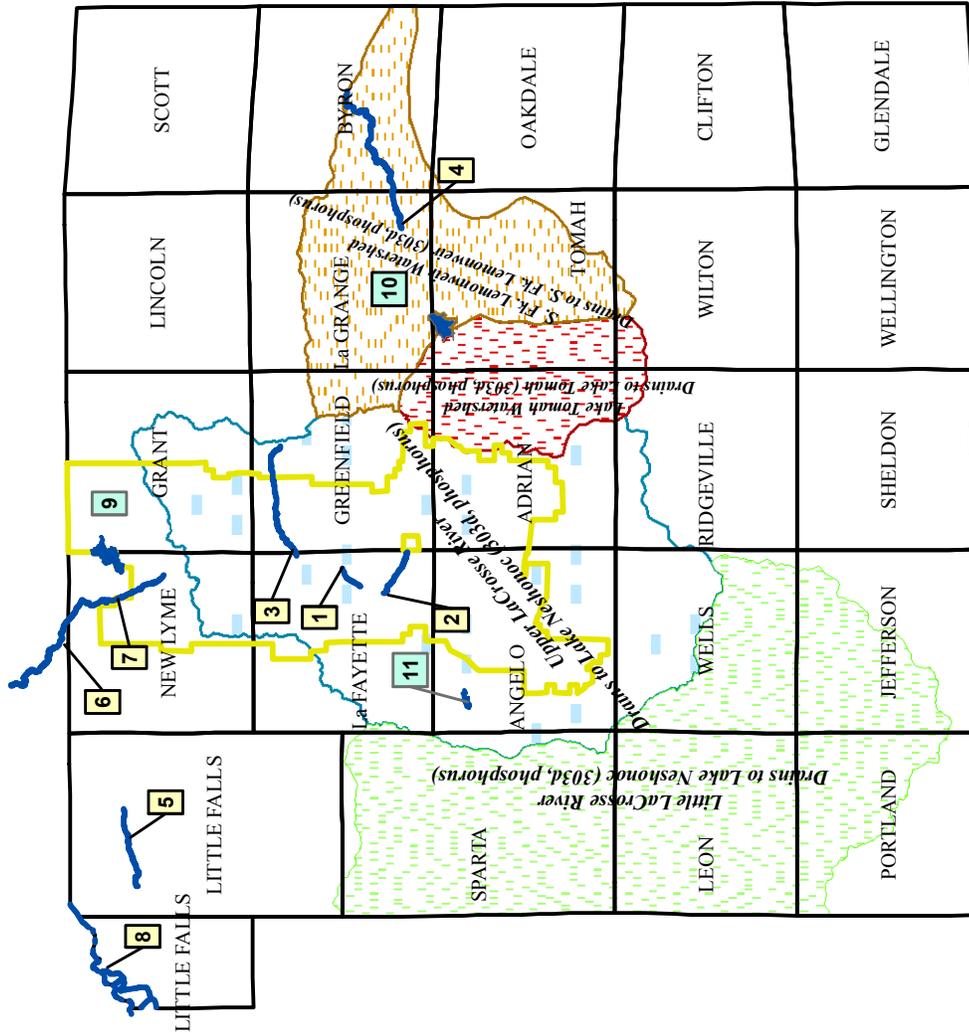
Resource professionals agree that sediment and nutrients contained in runoff are the main nonpoint source threats to Monroe County surface waters. The main nutrient problem is phosphorus. These are the same pollution problems brought up in discussions with citizens of Monroe County. The major surface water pollution sources in Monroe County are:

1. Sediment delivery from cropland and construction sites.
2. Sediment eroded from streambanks.

MAP 8

MONROE COUNTY 303(d) WATERS and

WATERSHEDS DRAINING TO 303(d) WATERS WITH NONPOINT SOURCE POLLUTANTS



Legend

303(d) streams

- 1-Creek 23-13(b) (sed)
- 2-Stillwell Creek (sed)
- 3-Squaw Creek (temp)
- 4-S. Fk. Lemonweir (BOD; phos)
- 5-Printz Creek (sed)
- 6-Clear Creek (temp)
- 7-Ranch Creek (Hg)
- 8-Black River (Hg, PCB)

303(d) lakes

- 9-North Flowage (Hg)
- 10-Lake Tomah (phos)
- 11-Angelo Pond (Hg)

Fort McCoy Military Reservation

1 inch = 6.3 miles

3. Runoff containing phosphorus from land spread with manure. The problem is greatest from liquid manure spread on frozen ground and on steep slopes or on fields adjacent to streams.
4. Phosphorus and sediment contaminated runoff from barnyards and livestock feeding areas in close proximity to surface waters.

In addition to sediment and nutrient issues, several other resource issues are cited as issues of concern:

5. A continuing concern over invasive plant species
6. Management of privately owned forest land continues to be a concern
7. Destruction and/or degradation of wetlands continues
8. The loss of farmland is a concern to county residents

The goals listed below are the priority issues of the citizen advisory committee and technical staff in Monroe County. The top 2 goals are listed as numbers 1 and 2.

SEDIMENT DELIVERY

Reducing sediment delivery from cropland has historically been the top goal of NRCS and LCD conservation efforts in Monroe County. The problem is driven mainly by topography, government commodity programs, and market trends. The most recent new challenges in the cropland erosion area are an increase in the acreage of corn silage and an increase in the number of organic farms. Many of the larger dairy herds are using more corn silage which leaves less residue cover. Higher prices for organically produced food have resulted in many farmers converting to organic farming. This method of farming requires more tillage because of the inability to use herbicides for weed control. Conservation tillage, especially no-till is an essential practice to keep soil losses down on Monroe County's steep crop fields. Map 9 on page 26 shows the crop fields on slopes over 6% in the county.

Sediment delivery from construction sites continues to be an issue in parts of the county. Dwellings are being constructed in areas that are not suited to construction. The fact that only 11 of 24 townships in Monroe County have adopted county zoning adds to this problem. Rules requiring compliance with Uniform Dwelling Code provisions are helping to address this issue, but compliance with the erosion control provisions of UDC are inconsistent.

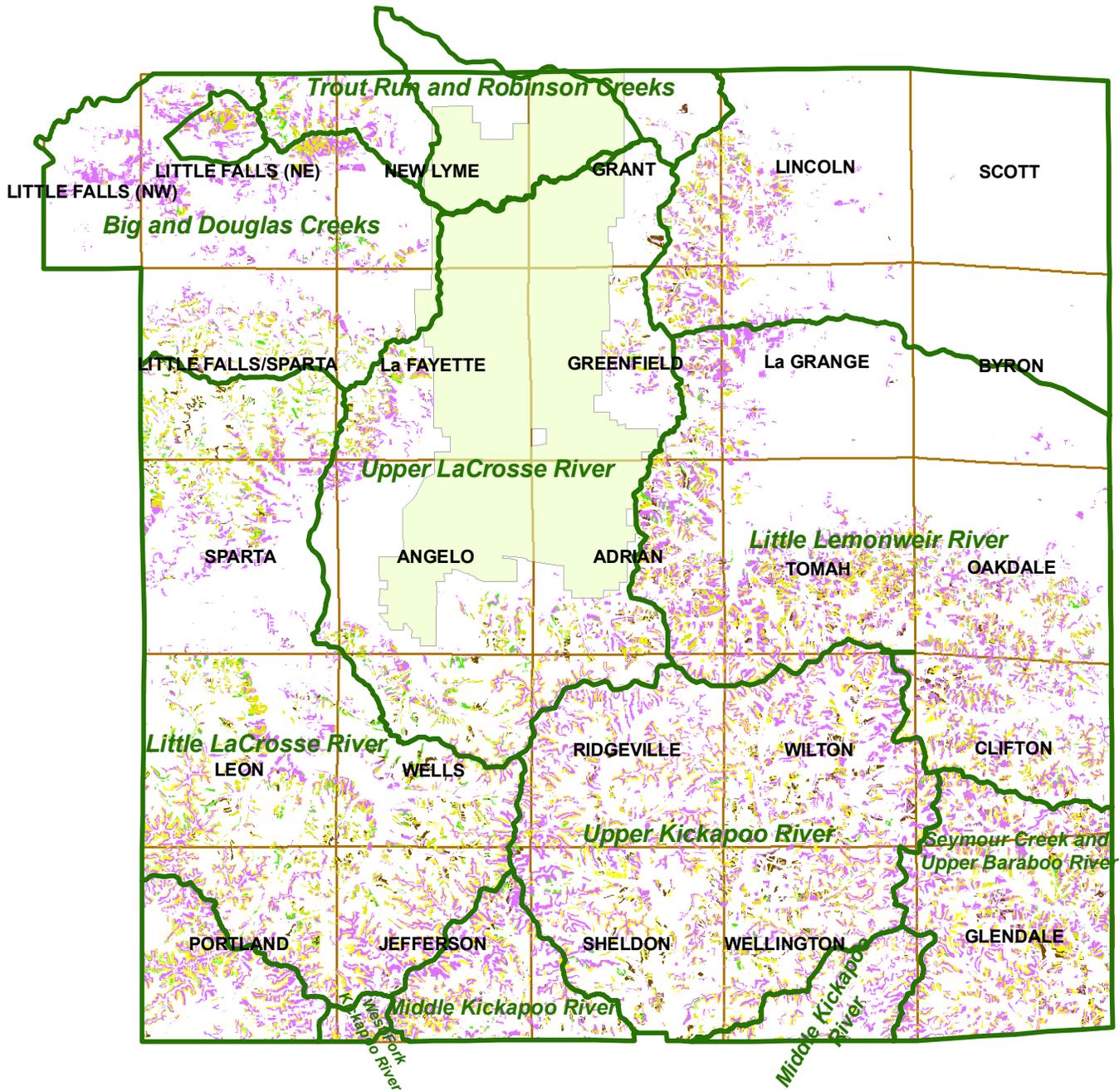
Goal 1: Reduce sediment delivery to surface waters

Action Items:

1. Plan cropland to "T". Staff will continue to emphasize conservation tillage and cover crops to meet soil loss goals.
2. Gully erosion and streambank erosion control will be high priority items for cost-share programs in Monroe County.
3. Monroe County staff will assist DNR in educating citizens and contractors on the requirements for storm water control.

MAP 9

**CROP FIELDS ON SLOPES OVER 6%
MONROE COUNTY**



LEGEND

- Crop fields on C slopes (6-12%)
- Crop fields on D slopes (12-20%)
- Crop fields on E slopes (20-30%)
- Crop fields on F slopes (> 30%)

1 inch = 4.9 miles

4. Monroe County staff will continue to run a transect survey to assess trends in soil erosion rates.
5. Monroe County resource agencies will continue to promote the Conservation Reserve Enhancement Program as an excellent tool to install buffers along waterways.
6. Assist landowners in meeting NR 151 performance standards and prohibitions.

PHOSPHORUS and MANURE RUNOFF

Recent trends towards larger and confined dairy herds have reduced the runoff problems from barnyards and feedlots. However, as is the case statewide, runoff from liquid manure spread on frozen ground has become an increased threat. A major fish kill in a local lake during the spring of 2005, and a manure runoff-caused kill in a local stream in August of 2007 brought attention to this problem. Also, recent testing in the Lake Tomah Watershed shows very high phosphorus levels in the lake, in the soils, and in the groundwater.

Goal 2: Reduce phosphorus runoff to surface waters

Action Items:

1. Monroe County and partner agencies will assist and encourage farmers to develop nutrient management plans meeting the 590 standard.
2. Monroe County will enforce our existing manure storage ordinance to ensure properly constructed storage facilities. Staff will encourage farmers to build structures large enough to store manure for 6 months in order to avoid spreading on frozen ground.
3. Monroe County will work with partner agencies and the Lake Tomah committee to find answers to the high phosphorus levels in Lake Tomah.
4. Monroe County staff will assist Discovery Farms staff with best management practice recommendations and installation in the Jersey Valley Watershed.
5. Monroe County will use available sources of funding to address severe runoff problems from barnyards and feedlots.
6. Monroe County, with assistance from DNR, will assist landowners in meeting NR 151 performance standards and prohibitions.

COLD WATER FISHERY

In addition to addressing nutrient and sedimentation problems in the county, agency staff see a need to continue our past emphasis on improving the cold water fishery in the county. Studies and cooperative efforts by Trout Unlimited, DNR, Fort McCoy fishery staff, NRCS, USFWS, and local conservation clubs show a need and an interest in continuing this effort.

Goal 3: Improve the cold water fishery in Monroe County

Action Items:

1. Cooperate with local organizations and state and federal agencies to identify streams that will benefit from habitat improvement work, then work with those groups to install practices.
2. Cooperate with partner agencies, growers, and grower associations on the installation of bmp's to improve cold water streams in areas used for cranberry production.

3. Cooperate with the Kickapoo Valley Stewardship Network on water quality testing on the Kickapoo River System in an effort to pinpoint nonpoint pollution problems.
4. Assist landowners in meeting NR 151 performance standards and prohibitions.

INVASIVE PLANT SPECIES

Invasive plants are a growing concern and have the potential to seriously degrade wildlife habitat, grazing land, and the amount and quality of native plant species.

Goal 4: Monitor the spread of invasive species and educate the public on this subject

Action Items:

1. Participate in the Monroe County Invasive Species Working Group
2. Work with schools on invasive plants initiatives
3. Continue to educate the public on invasive species, including field days, displays, and brochure distribution

PRIVATE FOREST LANDS

Many factors continue to put more stress on management of private forest lands, including higher tax rates due to use value assessment, the importance placed on the recreational value of forest land, improper harvesting methods, and forest fragmentation due to home construction and other land use decisions.

Goal 5: Improve forest management on private lands

Action Items:

1. Educate landowners on forestry management programs available in Monroe County
2. Assist units of government with land use planning activities

WETLANDS

The loss and/or degradation of wetlands continues in Monroe County in agricultural and commercial settings.

Goal 6: Maintain or increase wetland acreage and wetland quality in Monroe County

Action Items:

1. Assist local, state, and federal agencies in educating the public on laws, rules, and cross-compliance issues concerning wetlands.
2. Continue to educate Monroe County excavation contractors on their responsibilities when working in wetlands.

PRESERVATION of FARMLAND

Conversion of farmland to non-agricultural uses is a concern to both rural and urban residents of Monroe County. This point was made clear in the focus sessions held during the public input phase of the Monroe County Comprehensive Plan. As noted previously in this plan, a significant percentage of rural land sales result in conversion of farmland to non-ag uses.

Goal 7: Assist landowners and local units of government with programs and policies that encourage preservation of farmland

Action Items:

1. Assist interested Monroe County landowners with applying for Ag Enterprise Areas under the Working Lands Initiative.
2. Work with landowners, private groups, and units of government to take advantage of the Purchase of Conservation Easements program under the Working Lands Initiative.

Concerning all the above goals, the majority of public believes that more should be done concerning environmental education in schools. In that regard, Monroe County has always responded to requests for assistance with school projects, both in the classroom and in the field. Cooperating agencies have done so as well. We will continue to assist schools with their environmental education requests

Chapter Five – NR 151 Agricultural Performance Standards

Rules to control polluted runoff from farms and other sources in Wisconsin went into effect on October 1, 2002. DNR rule NR 151 sets performance standards and prohibitions for farms. The DATCP rule, ATCP 50, identifies conservation practices that farmers must follow to meet performance standards. For information on both rules, go to this information page at the DNR web site: <http://www.dnr.wi.gov/runoff/ag/perfstds.htm> . County Land Conservation Departments have primary responsibility for implementing the standards. Following are the ag performance standards and prohibitions:

NR 151.02 – Land where crops are grown shall be cropped to “T” using RUSLE II.

Monroe County farmers are expected to meet the “T” standard by using some or all of these practices from ATCP 50: contour farming, crop rotations, cover and green manure crop, diversions, filter strips, and residue management. In addition, planners recommend grassed waterways, grade stabilization structures, and critical area stabilization to control ephemeral erosion.

NR 151.05 - New, altered, or abandoned manure storage facilities must meet NRCS standards.

Facilities must meet NRCS standard 313 (waste storage facility), 360 (closure of waste impoundments, and/or 634 (manure transfer). Monroe County enforces a manure storage ordinance to address these issues.

NR 151.06 - Runoff shall be diverted from contacting feedlots, manure storage areas, and barnyard areas located within water quality management areas (WQMA).

Monroe County farmers need to use diversions, roof runoff systems, subsurface drains, and underground outlets to meet this standard.

NR 151.07 – Crop and livestock producers applying manure and other nutrients to agricultural fields shall do so according to a certified nutrient management plan.

Landowners must hire a certified agronomist or prepare their own plan by completing a certified course. Plans must meet NRCS Nutrient Management Standard 590. This standard was in effect on January 1, 2008, except for land in watersheds containing impaired waters and watersheds

containing exceptional or outstanding resource waters. These watersheds had a January 1, 2005 implementation date. See map 10 on page 31 for Monroe County nutrient management implementation status.

NR 151.08 – All livestock producers shall comply with 4 manure management prohibitions:

- *no manure storage facility overflow*
- *no unconfined manure piles in water quality management areas*
- *no direct runoff from a feedlot or stored manure into waters of the state*
- *no unlimited livestock access to waters of the state in a location where high concentrations of animals prevent maintenance of adequate sod or self-sustaining vegetative cover*

Monroe County farmers would use these practices to address problems with the prohibitions: manure store facilities, barnyard runoff systems, access roads and crossings, diversions, filter strips, livestock fencing, livestock watering facilities, prescribed grazing, streambank stabilization, and riparian buffers.

NR151 IMPLEMENTATION STRATEGY AND COMPLIANCE PROCEDURES

The following identifies the procedures the LCD may use in regards to compliance with NR 151, ATCP 50, and local regulations. Also the information identifies the procedures, including notice, hearing, enforcement, and appeals process that will apply if the County takes action against a landowner for failure to implement conservation practices under Chapter NR 151 or related local regulations. The implementation of compliance strategy is based on staff and funding availability.

Information and Education

Monroe County LCD, NRCS, and UWEX staff regularly inform landowners of the requirements of NR 151. This effort will continue in an attempt to encourage voluntary compliance with the rules. We have used newsletters, newspaper columns, direct mailings, the Monroe County web site, and handouts to get the word out. Examples of direct mailings and newsletters are included in the appendix.

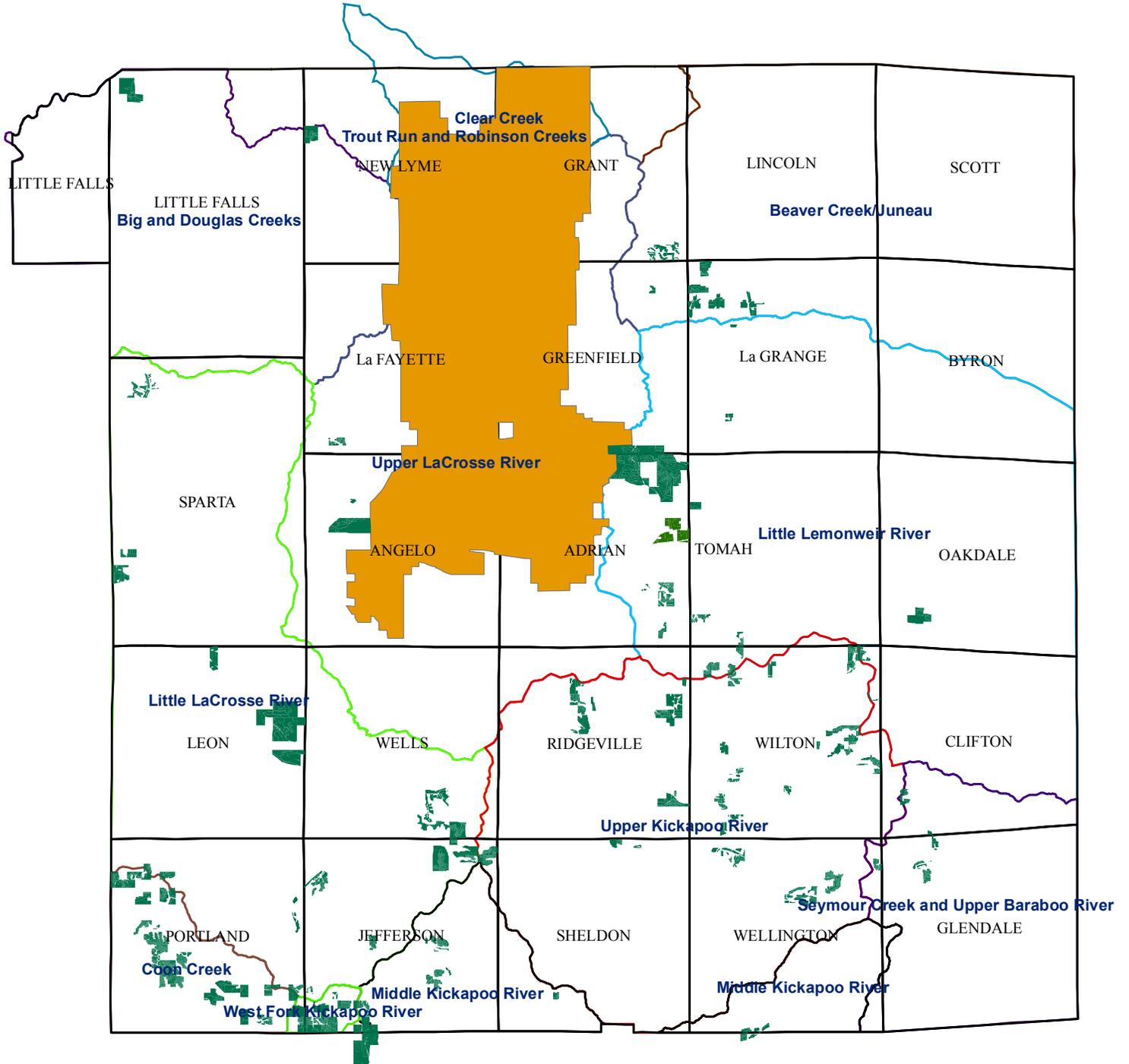
Priority Farm Identification

For NR 151 evaluations, information and education activity, and implementation, priority will be given to the following farms:

- farms with Farmland Preservation agreements that require NR 151 compliance
- farms located in the Jersey Valley Lake Watershed and the UWEX Discovery Farms program
- farms located in watersheds draining to 303(d) waters (see map 8 on page 24)
- in response to formal citizen complaints
- prior to signing SWRM grant cost-share agreements with landowners
- farms located in Water Quality Management areas

NR 151 assessments will be used to determine when farm operators are eligible for barnyard runoff cost-sharing. Priority for nutrient management plan cost-sharing will go to landowners requiring a plan for program participation or permits.

Nutrient Management Plan Implementation



Legend

-  CROP FIELDS WITH NUTRIENT MGMT PLANS (plans made available to Monroe Co staff)
-  Fort McCoy Military Reservation

Compliance Determination

Compliance determinations will be made using a combination of tools. A records inventory will be conducted using existing plans, agreements, and contracts. On-site evaluations will be completed using the evaluation form included in the appendix to this document. The form includes a signature page for the landowner. Compliance data will be tracked using the county geographic information system. Landowners with completed determinations will receive the following:

- a copy of the inspection report with a landowner signature page
- a letter with instructions on appeal procedures if the landowner does not agree with the findings
- recommendations for measures needed to achieve compliance, including an explanation of the technical standards and maintenance requirements
- a schedule for achieving compliance with the standards
- the status of available cost-sharing for recommended practices

Compliance determinations will be completed for these landowners:

- for any landowner requesting a determination
- for Farmland Preservation Program participants
- in response to formal citizen complaints
- prior to signing SWRM grant cost-share agreements with landowners

Enforcement

Enforcement of actions associated with NR 151.09 will be coordinated with the DNR. If a landowner continues to remain in noncompliance with the state performance standards, or should a landowner refuse technical and/or financial assistance from the LCD, the LCD will forward all information corresponding to the infraction(s) to the DNR and will notify the landowner(s) by registered mail that they are subject to an enforcement action pursuant to NR 151.09. The DNR contact for Monroe County is the Program and Planning Analyst in the La Crosse office.

Appeals

Any person aggrieved by a decision of the Monroe County Land Conservation Department may file a written appeal of the decision with the Monroe County Land Conservation Committee, 820 Industrial Dr., Suite 3, Sparta WI 54656 within 30 days of the Departments decision. A hearing on the appeal shall be commenced within 60 days of the date of the appeal.

Chapter Six – Monitoring and Evaluation

GEOGRAPHIC INFORMATION SYSTEM (GIS)

Like most counties in the state, Monroe County is in the process of land records modernization. The development and maintenance of accurate data layers is an ongoing activity in Monroe County departments. A county-wide tax parcel layer has recently been completed. Monroe County participates in the Wisconsin Regional Orthophotography Consortium for the purpose of obtaining updated orthophotography every five years. Monroe County will also be obtaining

county-wide LiDAR data through a grant received from the Wisconsin Department of Commerce.

The development of GIS capabilities greatly enhances monitoring and evaluation capabilities, especially when data can be shared between agencies. The Monroe County LCD has been an active participant in Monroe County's records modernization effort and will continue to cooperate in the advancement of this technology. Monroe County is currently using GIS to monitor and evaluate a variety of resource issues. Monroe County currently shares data with federal and state agencies and private companies who agree to data sharing.

NR 151 information as well as conservation practice records are stored in various layers of our GIS system.

CROPLAND TRANSECT SURVEY

The Monroe County LCD will continue to conduct an annual countywide transect survey of cropland to gather information on conservation tillage and soil loss rates. The survey provided a database of reliable information that can be used to monitor trends. These trends can be used to direct program activities, including information and education efforts.

WATER QUALITY MONITORING

Water quality data provides the true evaluation of nonpoint pollution control efforts. The Monroe County LCD will encourage continued water quality monitoring efforts by the Wisconsin DNR and Fort McCoy, and will cooperate with any of those efforts.

Monroe County funded a portion of the water quality monitoring conducted by the Valley Stewardship Network (VSN) in the Kickapoo River Watershed, and will continue to cooperate with similar efforts in the county. The VSN testing includes water temperatures, e-coli, and turbidity. The testing by VSN provides an indication of what problems exist, and what effect best management practices have on water quality. For instance, testing in 2005 downstream from a barnyard runoff system constructed in 2004 will provide data on the impact of that barnyard. Before construction of BMP's, this barnyard was a violation of NR 151 prohibitions. VSN plans a continuation of its water quality testing efforts in the Kickapoo Watershed. Monroe County will be a supporter of these efforts.

The following is from the VSN website at <http://www.kickapoovsn.org/>:

Monroe County BMP Practices

VSN is working in conjunction with the Monroe County Land Conservation Department (LCD) and the WDNR to promote BMP at sites of concern in the county. In 2008, three BMP projects were implemented and water monitoring and fish species assessment were done to assess stream health. VSN is currently working with Monroe County LCD and WDNR to perform post-construction stream assessment to analyze the success of these BMP implementation.

VSN was honored to be named 1 of 8 finalists in the national MillerCoors River Network grant competition to expand the BMP in Monroe County and commence this work in Vernon and Crawford Counties

Since Monroe County does a significant amount of trout habitat restoration work, water quality monitoring is used by partner agencies to assess the potential of streams being considered for work. Coles Valley Creek, recently upgraded to Class I after extensive habitat work, was monitored by Fort McCoy and DNR staff to assess water quality and habitat conditions and the probability of success. Fort McCoy staff conducts ongoing water quality testing in this watershed, both within Fort McCoy and outside their boundaries. Fort McCoy's extensive program has tested for metals, pesticides in a 1993-96 study, and currently focuses on lake limnology and stream water quality. They also collaborate with USGS on sediment and stream flow monitoring.

The Monroe County LCD cooperated with DNR and UWEX on water quality testing efforts in the Lake Tomah Watershed to determine the sources of excessive phosphorus levels in the lake. Tests included soil phosphorus levels in agricultural and urban soils, phosphorus and nitrogen levels in groundwater samples in the watershed, and phosphorus levels in Lake Tomah. This information was used in the Lake Tomah Management Plan.

ANNUAL ACCOMPLISHMENT REPORTS

Annual accomplishment reports will be submitted to DATCP as required. The report includes financial reports and actions and accomplishments related to work plan goals. This report would typically include quantity of installed practices, resulting pollutant load reductions, I & E activity, and progress on NR 151 standards.

Chapter Seven – Information and Education Strategy

A variety of action items relating to information and education have been listed in previous chapters. These items, including announcements on conservation practices and cost-sharing, will be accomplished with the development of brochures, individual contacts with landowners, group meetings and demonstrations, newspaper articles, and educational curriculums in schools. These items will be implemented by the LCD, NRCS, UW-Extension, DNR, and FSA.

In addition to the previously mentioned items, the Monroe County University Extension conducts several meetings throughout the year that will include agenda items on conservation issues. The educational meetings are listed below:

- Pest management update
- Fertilizer dealer/soil & water management
- Corn and soybean management
- Forage management
- Coulee Region Grazers

Most of the above meetings will have agenda items on conservation tillage and nutrient management issues. They also always include information on cost-share programs and needed conservation practices. Because of the expansion of dairy herds and cash grain farming, Monroe County agencies expect conservation tillage and nutrient management to be focus issues when educational programs are planned.

The Monroe County website has become a valuable tool for disseminating information. Material can be easily added or removed from this site, and is being used more by the public to retrieve information. The Monroe County Manure Storage Ordinance, the Monroe County Nonmetallic Mining Reclamation Ordinance, as well as brochures on CREP, storm water permits, and NR 151 rules are located on the web site.

The major goals of our information and education activities are as follows:

- make landowners and the general public aware of NR-151 standards and prohibitions.
- make landowners and the general public aware of services offered by Monroe County to address NR 151 issues.
- make the public aware of the problems caused by nonpoint source pollution.
- make landowners and the general public aware of programs and practices available from all agencies to address nonpoint source pollution issues.
- make the public aware of rules and regulations administered by all agencies, and assist them in following the rules and regulations.
- make construction contractors aware of their obligations to learn about and follow natural resource rules and regulations.

Chapter Eight – Coordination

The goals of the Monroe County Land and Water Resource Management Plan will be accomplished through coordination with local, state, and federal agencies and private organizations. Monroe County has always attempted to make the best use of all resources in addressing conservation issues. Program issues and ideas are discussed frequently with staff from all agencies. The Monroe County LCD has a very good working relationship with staff from state and federal agencies as well as neighboring counties. Following are resources used for conservation efforts in Monroe County:

USDA Programs –

1. Environmental Quality Incentives Program (EQIP). Provides cost-sharing through NRCS for a variety of conservation practices (see BMP definitions in appendix) to address erosion and nutrient management issues.
See <http://www.wi.nrcs.usda.gov/programs/eqip.html>
2. Wildlife Habitat Incentives Program (WHIP). Provides cost-sharing through NRCS for fish and wildlife habitat improvement practices.
See <http://www.wi.nrcs.usda.gov/programs/whip.html>
3. Conservation Reserve Program (CRP). Provides incentives through the Farm Services Agency to set aside land for conservation purposes.
See <http://www.fsa.usda.gov/FSA/webapp?area=home&subject=copr&topic=crp>
4. Conservation Reserve Enhancement Program (CREP). A multi-agency effort that provides incentives from FSA and the State of Wisconsin to create buffers along streams and waterways.
See <http://www.datcp.state.wi.us/arm/agriculture/land-water/conservation/crep/index.jsp>
5. Wetlands Reserve Program (WRP). Provides cost-sharing from NRCS to restore wetlands previously altered for agricultural use.

- See <http://www.wi.nrcs.usda.gov/programs/wrp.html>
6. Conservation Stewardship Program (CSP). Encourages farm and forestry landowners to maintain existing conservation practices and adopt new ones. Administered by NRCS. See <http://www.wi.nrcs.usda.gov/programs/csp/cstp.html>
 7. Farm and Ranch Lands Protection Program (FRPP). The purpose of this NRCS program is to protect agricultural lands by limiting non-agricultural uses. This program is a potential source of funding for purchase of development rights, and can be used as a match for state PACE funding. See <http://www.wi.nrcs.usda.gov/programs/fpp.html>

Wisconsin DNR Programs –

1. Targeted Resource Management Program (TRM). Provides grants for a variety of conservation practices to address severe water quality problems. See <http://dnr.wi.gov/runoff/grants/trm.htm>
2. Notice of Discharge. Notice of Discharge (NOD) Project Grants are provided to local units of government (typically counties) by the Department of Natural Resources and the Department of Agriculture, Trade and Consumer Protection. The purpose of these grants is to provide cost sharing to farmers who are required to install agricultural best management practices to comply with Notice of Discharge requirements. See <http://dnr.wi.gov/runoff/grants/applications/NOD.htm>
3. Managed Forest Law (MFL). Provides a tax incentive in exchange for long term sound forest management. See <http://dnr.wi.gov/forestry/ftax/>
4. Lake Management Planning Grant Program. Provides grants to local governments and lake organizations to analyze lake and watershed conditions. See <http://dnr.wi.gov/org/caer/cfa/Grants/Lakes/smalllake.html>
5. River Protection Planning. Provides grants to local governments for planning and assessment activities to assist in river protection activities. See <http://dnr.wi.gov/org/caer/cfa/Grants/Rivers/riverplanning.html>
6. Trout Stamp Program. Funds from the sale of inland trout stamps are designated for trout habitat improvement work. Monroe County and cooperating agencies partner with DNR to combine funds and resources from other programs to complete trout habitat work.
7. County Conservation Aids. This Fish and Wildlife Management Grant Program was created to assist Wisconsin Counties in the improvement of the fish and wildlife resources. Monroe County annually uses this program for a habitat improvement project in the county. See <http://dnr.wi.gov/org/caer/cfa/Grants/coconserv.html>

Wisconsin DATCP Programs –

1. Soil and Water Resource Management Grants. Grants awarded to counties through this program fund county conservation staff and finance cost-share projects for landowners. See http://www.datcp.state.wi.us/arm/agriculture/land-water/conservation/soil_water_rm.jsp
2. Working Lands Initiative. This program, which became law in 2009, includes three main components - updates to the state's current Farmland Preservation Program, the ability for farmers and local governments to establish voluntary Agricultural Enterprise Areas, and a state program to help with the purchase of Agricultural Conservation Easements. See <http://www.datcp.state.wi.us/workinglands/index.jsp>

US Fish and Wildlife Service Programs –

1. Partners for Fish and Wildlife Program. Program used in Wisconsin to assist in wetland restoration, fish and wildlife habitat improvement, and restoration of habitats of special concern. In Monroe County, restoration of Karner Blue Butterfly habitat, restoration of oak savannah, restoration of brook trout streams, and wetland restorations have been the highest priority projects. More information is available at <http://www.fws.gov/midwest/wisconsinpartners/>

University of Wisconsin Discovery Farms –

1. Jersey Valley Watershed Project. A monitoring project in the Jersey Valley Watershed will evaluate current and future conditions and practices in an effort to determine management strategies to reduce nonpoint runoff. More information is available at <http://www.uwdiscoveryfarms.org/>

Existing Monroe County Ordinances and Programs –

1. Monroe County Manure Storage Ordinance. Administered by the Monroe County LCD to assure all construction, alteration, and closure of manure storage systems meet NRCS standards.
2. Monroe County Nonmetallic Mining Ordinance. Administered by the Monroe County LCD to assure proper closure of nonmetallic mines. This ordinance also addresses erosion control at mine sites.
3. Monroe County Shoreland Zoning Ordinance. Administered by the Monroe County Zoning office for the purpose of controlling the intensity of development and creating buffers in water quality management areas.
4. Monroe County Zoning Ordinance. Administered by the Monroe County Zoning office with the intent of regulating a variety of land use issues. Only 11 townships in Monroe County have adopted County Zoning.
5. Monroe County Farmland Preservation Program. The conservation standards for this program were revised in 2005 to include the NR 151 standards and prohibitions. This program provides income tax relief to participants who protect farmland and follow conservation plans. New participation in this program is now closed, but existing participants must meet conservation standards.

To view the above referenced ordinances (items 1-4), click on the link to the Monroe County Code of Ordinances available at <http://www.co.monroe.wi.us>.

2011 – 2015 WORK PLAN, MONROE COUNTY

GOALS #1 AND #2 AND THE OBJECTIVES AND ACTIONS ASSOCIATED WITH THEM ARE THE PRIORITY GOALS FOR MONROE COUNTY.

Goal #1: Reduce sediment delivery to surface waters of Monroe County

OBJECTIVES	ACTIONS	WHO ¹	WHEN	ANTICIPATED ANNUAL OUTCOME	I & E TOOLS
Reduce sediment delivery from cropland fields	Write conservation plans for program participants	NRCS LCD	11 - 15	5,000 acres of cropland conservation plans	--Farmland Conservation Choices
	Promote no-till and cover crops	UWEX NRCS LCD	11 - 15	2 I & E events	--NRCS, FSA web sites
	Conduct transect survey of cropland to monitor conditions	LCD	11 - 15	Monitor soil loss rates in County	
	Implement CREP	LCD NRCS FSA		10 acres of CREP /yr	--CREP fact sheets --Monroe Co., NRCS, FSA web pages
	Assist landowners with NR 151 requirements	LCD NRCS DNR UWEX	11 - 15	20 NR 151 evaluations	--Wis. Runoff Rules: What Farmers Need to Know --Monroe Co., DATCP, DNR, UWEX web sites
Reduce sediment delivery from construction sites	Inform the public and contractors on required storm water control (NR 216)	DNR LCD NRCS	11 - 15	train 25 contractors at workshop and assist 5 landowners with permits	--Does Your Construction Site Need a Storm Water permit? --Erosion Control for Home Builders
Reduce sediment delivery from uncontrolled gullies	Use available cost-share money to cost-share gully control. Design and install practices.	LCD NRCS	11- 15	5 grade structures 5 acres grassed waterways	--Farmland Conservation Choices
Reduce sediment delivery from streambanks	Use available cost-share money to cost-share streambank work. Design and install practices	LCD NRCS	11 - 15	3,000 ft. streambank improvement	--Farmland Conservation Choices
<p>Estimated annual LCD staff costs for Goal # 1 – 1.3 FTE = \$95,600 from DATCP and county levy. Estimated annual costs other than staff = \$150,000 in cost-share from DATCP, FSA, NRCS and DNR.</p>					

2011 – 2015 WORK PLAN, MONROE COUNTY

Goal #2: Reduce phosphorus runoff to surface waters of Monroe County

OBJECTIVES	ACTIONS	WHO	WHEN	ANTICIPATED ANNUAL OUTCOME	I & E TOOLS
Increase the acreage in Monroe County being managed under "590" plans	Encourage operators to use EQIP or other available cost-share program for plan preparation	UWEX NRCS LCD	11-15	1,000 acres of nutrient management plans	--What is a Farm Nutrient Management Plan?
	Do I&E on NR151 planning requirements	LCD NRCS UWEX		1 newsletter article 1 direct mailing	--Wis. Runoff Rules: What Farmers Need to Know
Address phosphorus loading issues in Lake Tomah	Assist Lake Tomah Citizens Committee and DNR with analysis of Lake issues.	LCD UWEX DNR	11-15	Meet 2 times with Lake Tomah Committee	--Phosphorus Movement from Land to Water
Assure that installed, altered and closed manure storage systems meet NRCS standards	Enforce manure storage ordinance	LCD		assist 5 landowners with manure storage	--Monroe Co. web site
Seek solution to runoff from winter spread manure	Cooperate with Discovery Farms project in Jersey Valley	LCD NRCS UWEX	11-15	Implement Discovery Farm recommendations	--When and Where to Apply Manure --What Farmers Need to Know
Reduce runoff from barnyards and feedlots	Implement NR 151 Apply for TRM grants and use EQIP and NOD funds for high priority sites	LCD NRCS	11-15	install 2 barnyard runoff systems using TRM, NOD or EQIP cost-sharing	--Wisconsin Runoff Rules: What Farmers Need to Know --Monroe Co., DATCP, DNR, UWEX web sites

Estimated annual LCD staff costs for Goal # 2 – 0.8 FTE = \$58,900 from DATCP and county levy.

Estimated annual costs other than staff = \$135,000 in cost-share from DATCP, FSA, NRCS and DNR, \$20,000 for cost-sharing in Jersey Valley Watershed

Goal #3: Improve the cold water fishery of Monroe County

OBJECTIVES	ACTIONS	WHO	WHEN	ANTICIPATED ANNUAL OUTCOME	I & E TOOLS
Identify streams that will benefit from habitat improvement work, then find funds to complete practices	Work with agencies and private groups to identify streams	LCD, DNR, NRCS USFWS, Fort McCoy, Valley Stewardship	11-15	identify 1 stream for habitat improvement	--Wisconsin Runoff Rules: What Farmers Need to Know
	Do water quality monitoring			assist VSN to monitor 5 sites in Kickapoo, Fort McCoy to monitor 2 sites in Upper LaCrosse	--The Driftless Area, A Land of Opportunities (TU)
Analyze trout habitat needs where streambank improvement projects take place.	Use LUNKERS and other habitat improvement methods where needed	LCD	11-15	1,500 ft. of trout habitat improvement	--Trout Unlimited web site

Estimated annual LCD staff costs for Goal # 3 – .6 FTE = \$44,000 from DATCP and county levy.

Estimated annual costs other than staff = \$5,000 from various sources for monitoring

2011 – 2015 WORK PLAN, MONROE COUNTY

Goal #4: Monitor the spread of invasive plant species and educate the public on this subject

OBJECTIVES	ACTIONS	WHO	WHEN	ANTICIPATED ANNUAL OUTCOME	I & E TOOLS
Make public aware of invasive plants	Participate in Monroe County Invasive Plants Working Group	LCD, NRCS, DOT, Fort McCoy, UWEX, Zoning, USFWS	11-15	convene workgroup 3 times/yr	--Invasive Plants of Monroe County --DNR, NRCS brochures --Monroe Co. web site
	Distribute brochures, provide public outreach and demonstrations			assist schools with loosestrife and knapweed projects	
Estimated annual LCD staff costs for Goal # 4 – .1 FTE = \$7,000 from DATCP and county levy					
Estimated annual costs other than staff = \$5,000 for demonstration projects, I & E, and school projects					

Goal #5: Improve Forest Management on Private Lands in Monroe County

OBJECTIVES	ACTIONS	WHO	WHEN	ANTICIPATED ANNUAL OUTCOME	I & E TOOLS
Make public aware of resources available for forest management	Make personal contacts and do I & E	DNR, LCD	11-15	25 MFL plans	--Forestry Facts --Wisconsin's Forestry BMP manual
Improve land use decisions made by landowners and unit of government	Assist with land use planning/implementation when requested	LCD, Zoning, Land Information	11-15	assist 2 municipalities with planning issues	
Estimated annual LCD staff costs for Goal # 5 – .1 FTE = \$7,000 from DATCP and county levy					

Goal #6: Maintain or increase wetland acreage and wetland quality in Monroe County

OBJECTIVES	ACTIONS	WHO	WHEN	ANTICIPATED ANNUAL OUTCOME	I & E TOOLS
Make public aware of laws, rules and cross-compliance issues concerning wetlands	Personal contacts, newsletters, media	DNR, LCD, NRCS, Zoning, USFWS	11-15	2 I & E events	--Contractor Workshop --Newspaper column
Educate Monroe County excavation contractors on wetlands rules	Workshops, newsletters	NRCS, LCD, Zoning,	11-15	contractor workshop item	
Estimated annual LCD staff costs for Goal # 6 – .05 FTE = \$3,600 from DATCP and county levy					

2011 – 2015 WORK PLAN, MONROE COUNTY

Goal 7: Assist landowners and local units of government with programs and policies that encourage preservation of farmland

OBJECTIVES	ACTIONS	WHO	WHEN	ANTICIPATED ANNUAL OUTCOME	I & E TOOLS
Meet requirements of Working Lands Initiative, assist Monroe County landowners with participation	Update Farmland Preservation Plan as required by statute	UWEX, LCD, Zoning,	2013	approved plan	-- Working lands fact sheets -- DATCP web site
	Assist interested landowners with Ag Enterprise application	LCD	11-15	2 applications over 5 yrs	
	Assist landowners with PACE requests			2 applications over 5 yrs	
Estimated annual LCD staff costs for Goal # 6– .1 FTE = \$7,000 from DATCP and county levy					

1 Bolded agency is the lead agency for this activity

APPENDIX

Page 1-A – Plan References

Page 2-A – Citizens Survey

Page 5-A – Monroe County NR 151 Evaluation Form

Page 9-A – Best Management Practice Definitions

Page 11-A – Shaded Relief, Monroe County

Page 12-A – Endangered and Threatened Resources, Monroe County

Page 21-A – State Natural Areas, Monroe County

Page 25-A – Public Participation Summary for Monroe County Comprehensive Plan

Monroe County Land & Water Plan References

1. Monroe County Soil Erosion Control Plan. Stockham, Vandewalle & Gutheinz, Inc. April 1988.
2. Nonpoint Source Control Plan for the Lake Tomah Priority Lake Project. Wisconsin Department of Natural Resources; Wisconsin Department of Ag, Trade and Consumer Protection; USDA – Soil Conservation Service; and the Monroe County Land Conservation Department. June 1994.
3. Nonpoint Source Control Plan for the Middle Kickapoo River Priority Watershed. Monroe, Vernon, and Richland County Land Conservation Departments; Wisconsin Department of Ag, Trade and Consumer Protection; Wisconsin Department of Natural Resources. August 1991.
4. Silver Creek Water Quality Summary Report. John D. Noble. August 1998.
5. The State of the Lower Wisconsin River Basin. Wisconsin Department of Natural Resources, July 2002
6. The State of the Black-Buffalo-Trempealeau Basin. Wisconsin Department of Natural Resources. May 2002.
7. The State of the Bad-Axe-LaCrosse River Basin. Wisconsin Department of Natural Resources. March 2002.
8. Wisconsin Trout Streams. Wisconsin Department of Natural Resources
9. Surface Water Resources of Monroe County. Wisconsin Department of Natural Resources. 1969.
10. Soil Survey of Monroe County, Wisconsin. USDA-Soil Conservation Service. June 1984.
11. Hydrologic Assessment of the Kickapoo Watershed, Southwestern Wisconsin. Wisconsin Geological and Natural History Survey and Department of Geological Engineering, UW-Madison. August 1998.
12. Nutrient and Pest Management Practices in the Middle Kickapoo River Watershed. University of Wisconsin-Extension. July 1991.
13. Nonpoint Source Watershed and Lake List. Wisconsin Department of Natural Resources. February 1998.
14. Lake Tomah Management Plan. Tomah Lake Committee. October 2009
15. Fort McCoy Integrated Resource Management Plan. 2005

2010 MONROE COUNTY LAND AND WATER PLAN REVISION

Chapter 92 of Wisconsin Statutes requires counties in Wisconsin to develop Land and Water Resource Management (LWRM) plans. In general LWRM plans are intended to assess the conditions of local resources, identify local nonpoint pollution problems and priorities, develop plans for addressing problems, coordinate resource management efforts, and assess and track progress.

Monroe County completed its' LWRM plan in 1999. The plan was revised in 2005. This plan is available for viewing on this web site. A mandated revision of the plan must be completed again in 2010. To participate in the public input to this plan, please take a few minutes to complete the survey on the next page.

To complete the survey electronically, follow these steps:

- . • save this file to your computer
- . • complete the form by typing in the appropriate boxes
- . • save the file when completed
- . • email the completed file to ahoff@co.monroe.wi.us

If you wish to comment on issues not included on the survey, send along an extra page, or type your comments in the body of your email message.

For questions, contact Al Hoff at 608/269-8974.

**PLEASE COMPLETE THIS SURVEY PRIOR TO JUNE 1, 2010 MONROE
COUNTY RESOURCE SURVEY**
for
2010 LAND AND WATER RESOURCE MANAGEMENT PLAN REVISION

1: Please rank the 5 most important natural resource issues facing Monroe County in the next decade, with 1 being the most important and 5 the least.

RANK	RESOURCE ISSUE
	Preservation of agricultural land
	Sustainability of agriculture
	Manure management
	Invasive plants management
	Nutrient management
	Pesticide management
	Land use in rural areas
	Soil erosion from agricultural land
	Soil erosion from construction sites
	Storm water management
	Wetland protection
	Wildlife management
	Grazing lands management
	Forest management
	Fish habitat improvement
	Stream corridor management
	Groundwater pollution
	Pollution from urban sources

2: Please answer these questions		
	YES	NO
Are environmental regulations adequate in Monroe County?		
Will land use plans (Smart Growth plans) be beneficial to local unit of government?		
Do you think environmental education in Monroe County schools is adequate?		
Are you familiar with the performance standards and prohibitions in Wisconsin's runoff rules (NR 151)?		
Do use the Monroe County government web site?		
Do you believe invasive plant and animal species are a problem in Monroe County?		

4: Comments: Please write any comments here. How can resource agencies better manage our resources and serve the public?

Optional

Name Address - City -State -Zip email address -

MONROE COUNTY INVENTORY AND EVALUATION FORM
for
AGRICULTURAL PERFORMANCE STANDARDS AND PROHIBITIONS
NR 151, RUNOFF MANAGEMENT

Landowner - _____ Operator - _____

Evaluated by - _____ Date - _____

	<i>YES</i>	<i>NO</i>
<u>NR 151.02 Sheet, Rill and Wind Erosion</u>		
<i>Land where crops are grown shall be cropped to "T" using RUSLE II.</i>		
• Is there a current farm plan?	<input type="checkbox"/>	<input type="checkbox"/>
• Does the existing farm plan meet "T" using RUSLE II?	<input type="checkbox"/>	<input type="checkbox"/>
• Is the operator following the farm plan?	<input type="checkbox"/>	<input type="checkbox"/>

<u>NR 151.05 Manure Storage Facilities</u>		
<i>New, altered, or abandoned manure storage facilities must meet NRCS standards.</i>		
NR 151.05 (2) New Construction and Alterations		
• Is there a manure storage facility at this site?	<input type="checkbox"/>	<input type="checkbox"/>
• What year was the facility constructed?	_____	
• Has the original facility been altered? If yes, when?	<input type="checkbox"/>	<input type="checkbox"/>
• Is the facility certified as meeting NRCS standards?	<input type="checkbox"/>	<input type="checkbox"/>
NR 151.05 (3) Closure		
• Has any manure been added or removed in past 24 months?	<input type="checkbox"/>	<input type="checkbox"/>
• Is retention of the facility warranted based on future use?	<input type="checkbox"/>	<input type="checkbox"/>
NR 151.05 (4) Failing and Leaking Existing Facilities		
• Does the facility as is pose a public health threat, a threat to fish and aquatic life, or is it violating groundwater standards?	_____	

<u>NR 151.06 Clean Water Diversions</u>		
<i>Runoff shall be diverted from contacting feedlots, manure storage areas, and barnyard areas located within water quality management areas (WQMA).</i>		
• Is a feedlot, barnyard, or manure storage area located in a WQMA?	<input type="checkbox"/>	<input type="checkbox"/>
• If yes, is clean water being diverted?	<input type="checkbox"/>	<input type="checkbox"/>

<u>NR 151.07 Nutrient Management</u>		
<i>Crop and livestock producers applying manure and other nutrients to agricultural fields shall do so according to a certified nutrient management plan.</i>		
• Does this farm have a certified 590 nutrient management plan?	<input type="checkbox"/>	<input type="checkbox"/>
• If yes, who prepared the plan?	_____	
• When was the plan prepared?	_____	
• When was the last update prepared?	_____	
• Does any cropland drain to outstanding, exceptional, or impaired waters?	_____	

DEFINITIONS USED IN NR 151 EVALUTATION

Adequate Sod or Self-sustaining Vegetative Cover – the maintenance of sufficient vegetation types and densities such that the physical integrity of the streambank or lakeshore is preserved. Self-sustaining vegetative cover includes grasses, forbs, sedges and duff layers of fallen leaves and woody debris.

Direct Runoff – a discharge of a significant amount of pollutants to water of the state resulting from any of the following practices:

1. runoff from a manure storage facility
2. runoff from an animal lot that can be predicted to reach surface water of the state through a defined or channelized flow path or man-made conveyance
3. discharge of leachate from a manure pile
4. seepage from a manure storage facility
5. construction of a manure storage facility in permeable soils or over fractured bedrock without a liner designed in accordance with NR 154.04 (3)

Unconfined Manure Pile – a quantity of manure that is at least 175 ft³ in volume and which covers the ground surface to a depth of at least 2 inches and is not confined within a manure storage facility, livestock housing facility or barnyard runoff control facility or covered or contained in a manner that prevents storm water access and direct runoff to surface water or leaching of pollutants to groundwater.

Water Quality Management Area (WQMA) – the area within 1,000 feet from the ordinary high water mark of navigable waters of a lake, pond or flowage; the area within 300 feet from the ordinary high water mark of navigable waters of a river or stream; a site that is susceptible to groundwater contamination or that has the potential to be a direct conduit for contamination to reach groundwater. A site susceptible to groundwater contamination means the following:

1. an area within 250 ft. of a private well
2. an area within 1000 ft. of a municipal well
3. an area within 300 ft. upslope or 100 ft downslope of karst features
4. a channel with a cross-sectional area equal to or greater than 3 ft² that flows to a karst feature
5. an area where the soil depth to groundwater or bedrock is less than 2 feet.
6. an area where the soil above groundwater or bedrock does not exhibit one of the following:
 - at least a 2-foot soil layer with 40% fines or greater
 - at least a 3-foot soil layer with 20% fines or greater
 - at least a 5-foot soil layer with 10% fines or greater

Waters of the State – defined in s.283.01 (20) Stats.

- all lakes, bays, rivers, streams, springs, ponds, wells, impounding reservoirs, marshes, water courses, drainage systems and other surface water or groundwater, natural or artificial, public or private within the state or under its jurisdiction, *except those waters which are entirely confined and retained completely upon the property of a person.*

Nutrient Management Plan Deadlines:

1. January 1, 2005 for land located in watersheds draining to outstanding or exceptional resource waters.
2. January 1, 2005 for land located in watersheds draining to 303d waters if the impairment relates to excessive nutrients.
3. January 1, 2008 for other lands.

STAFF RECOMMENDATIONS

The following conservation practices and management decisions are options to correct violations of NR-151 standards and prohibitions listed on page 2:

The following conservation practices and management decisions are options to address runoff problems unrelated to NR-151 standards and prohibitions:

BEST MANAGEMENT PRACTICE DEFINITIONS

Access Roads and Crossings: A Road or pathway which confines or directs the movement of livestock or farm equipment, and which is designed and installed to control surface water runoff.

Barnyard Runoff Control System: Structural measures to redirect surface runoff around the barnyard and collect, convey, or temporarily store runoff from the barnyard.

Contour Strip Cropping: Tilling and planting across the slope following the contours of the land, and breaking the field into alternating bands of row crops and hay or small grains.

Cover and Green Manure Crop: Close-growing grasses, legumes, or small grains grown to control erosion when major crops do not furnish adequate cover.

Critical Area Planting: Planting grass, legumes or other vegetation to protect small, badly eroding areas.

Crop Rotation: Changing the crops grown in a field, usually in a planned sequence.

Crop Residue Management: Any tillage method that leaves crop residue on the surface to reduce erosion.

Diversion: An earthen embankment and channel, similar to a terrace, constructed across a slope to collect water, divert it to a stable outlet, and protect an area downslope.

Filter Strips: An area of herbaceous vegetation that separates an environmentally sensitive area from cropland, grazing land or disturbed land.

Grade Stabilization Structure: An earthen, concrete or other structure built across a drainageway to prevent gully erosion.

Grass Waterway: A natural or constructed channel shaped, graded, and established with suitable cover as needed to prevent erosion by runoff waters.

Livestock Fencing: Excluding livestock in order to protect an erodible area or practice, or restricting human access to areas which may pose a hazard to humans.

Livestock Watering Facilities: A trough, tank, pipe, conduit, spring development, pump, well, or other device installed to deliver drinking water to livestock.

Manure Storage Facility: A structure for the temporary storage of manure for the period of time that is needed to safely land spread the manure and reduce the risks of nonpoint source pollution.

Nutrient Management: Careful management of all aspects of soil fertility to meet crop needs and minimize impacts on water quality. This practice includes crediting of nutrients from all sources and managing applications to minimize surface and groundwater pollution.

Riparian Buffer: Strips or small areas of land in permanent vegetation that help control pollutants and promote other environmental benefits.

Roof Runoff System: Facilities for collecting, controlling, diverting, and disposing of precipitation from roofs.

Rotational Grazing: Planting forage and using grazing rotations among different fields to maximize production and reduce sediment and nutrient runoff.

Streambank and Shoreline Stabilization: Protecting a stream or other body of water by re-shaping and stabilizing the bank and managing livestock access.

Subsurface Drains and Underground Outlets: A conduit installed below the surface of the ground to collect drainage water and convey it to a suitable outlet.

Water and Sediment Control Basin: A small earthen embankment built across the bottom of a drainageway to temporarily store runoff.

Well Abandonment: Unused wells that are filled and sealed to prevent surface runoff from contaminating drinking water aquifers.

Wetland Restoration: Restoring a previously drained wetland by filling ditches or removing or breaking tile drains.

Woodlot Management: Improving the quality and quantity of existing woodland trees and ground cover to conserve soil and water, enhance wildlife and produce valuable timber.



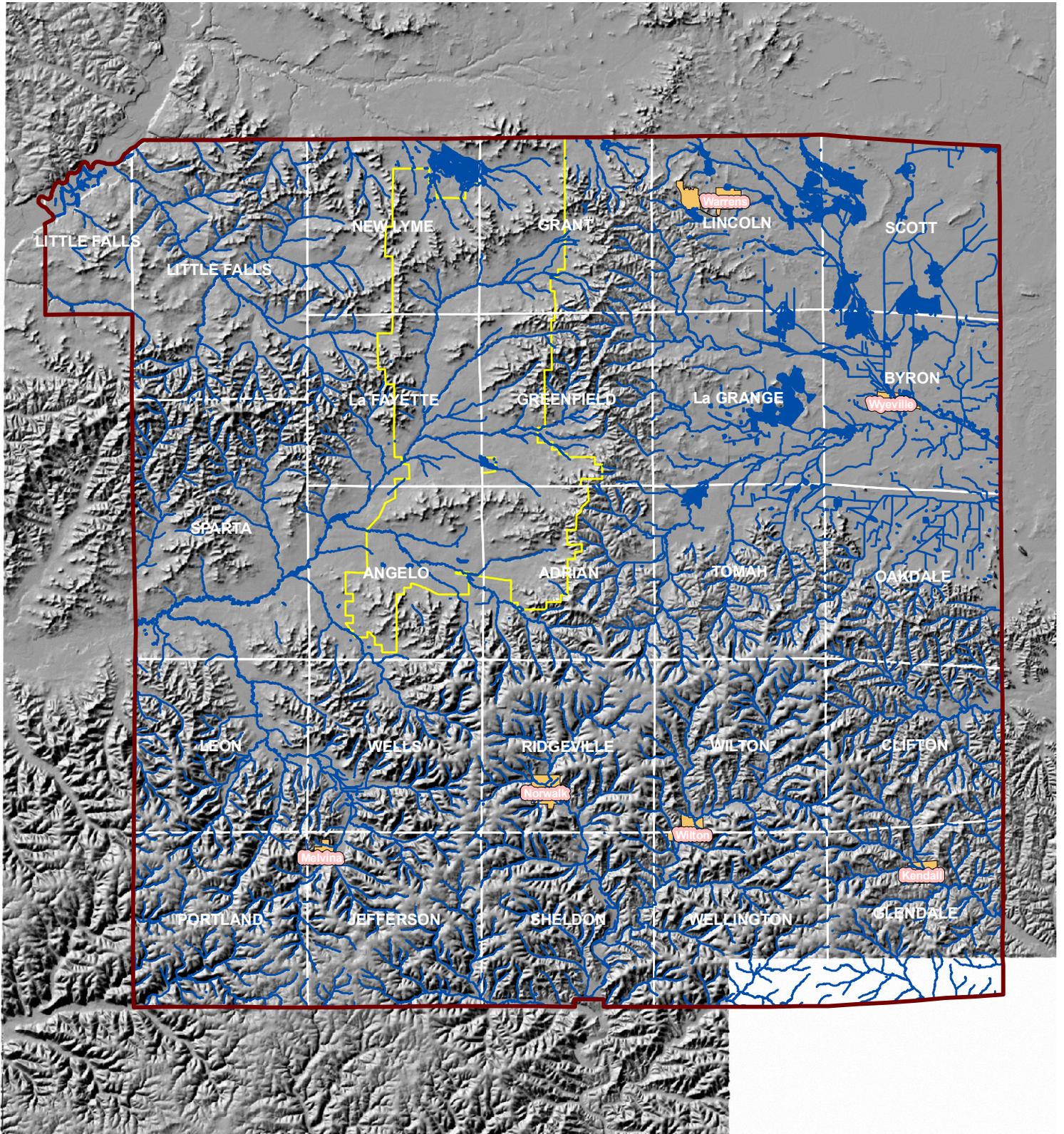
Grassed Waterway



Streambank Stabilization

SHADED RELIEF, MONROE COUNTY

MAP 11



1 inch = 4.7 miles

11-A

Elements by Townrange for Monroe County

The Natural Heritage Inventory (NHI) database contains recent and historic element (rare species and natural community) observations. A generalized version of the NHI database is provided below as a general reference and should not be used as a substitute for a WI Dept of Natural Resources NHI review of a specific project area. The NHI database is dynamic, records are continually being added and/or updated. The following data are current as of 10/06/2009:

Town Range

Scientific Name	Common Name	State Status	Federal Status	State Rank	Global Rank	Group Name
<i>Cirsium flodmanii</i>	Flodman Thistle	SC		S1	G5	Plant
<i>Platanthera hookeri</i>	Hooker Orchis	SC		S2S3	G4	Plant
<i>Solidago sciaphila</i>	Shadowy Goldenrod	SC		S3	G3G4	Plant
015N001E						
<i>Aconitum noveboracense</i>	Northern Wild Monkshood	THR	LT	S2	G3	Plant
<i>Glyptemys insculpta</i>	Wood Turtle	THR		S2	G4	Turtle-
015N001W						
<i>Corallorhiza odontorhiza</i>	Autumn Coral-root	SC		S3	G5	Plant
<i>Dry cliff</i>	Dry Cliff	NA		S4	G4G5	Community
<i>Empidonax virescens</i>	Acadian Flycatcher	THR		S3B	G5	Bird
<i>Hemlock relict</i>	Hemlock Relict	NA		S2	G2Q	Community
<i>Liodesmus cantralli</i>	Cantrall's Bog Beetle	SC/N		S1S2	GNR	Beetle-
<i>Moist cliff</i>	Moist Cliff	NA		S4	GNR	Community
<i>Southern mesic forest</i>	Southern Mesic Forest	NA		S3	G3?	Community
015N002W						
<i>Adoxa moschatellina</i>	Musk-root	THR		S2	G5	Plant
<i>Clinostomus elongatus</i>	Redside Dace	SC/N		S3	G3G4	Fish-
<i>Diarrhena obovata</i>	Beak Grass	END		S2	G4G5	Plant
<i>Dry cliff</i>	Dry Cliff	NA		S4	G4G5	Community
<i>Hemlock relict</i>	Hemlock Relict	NA		S2	G2Q	Community
<i>Houstonia caerulea</i>	Innocence	SC		S2	G5	Plant
<i>Moist cliff</i>	Moist Cliff	NA		S4	GNR	Community
<i>Northern mesic forest</i>	Northern Mesic Forest	NA		S4	G4	Community
<i>Pine relict</i>	Pine Relict	NA		S2	G4	Community
<i>Southern mesic forest</i>	Southern Mesic Forest	NA		S3	G3?	Community
015N003W						
<i>Clinostomus elongatus</i>	Redside Dace	SC/N		S3	G3G4	Fish-
<i>Silene nivea</i>	Snowy Champion	THR		S2	G4?	Plant
015N004W						
<i>Arabis shortii</i>	Short's Rock-cress	SC		S2	G5	Plant
<i>Bartramia longicauda</i>	Upland Sandpiper	SC/M		S2B	G5	Bird
<i>Dendroica cerulea</i>	Cerulean Warbler	THR		S2S3B	G4	Bird
<i>Diplazium pycnocarpon</i>	Glade Fern	SC		S2	G5	Plant
<i>Dry cliff</i>	Dry Cliff	NA		S4	G4G5	Community
<i>Empidonax virescens</i>	Acadian Flycatcher	THR		S3B	G5	Bird
<i>Jeffersonia diphylla</i>	Twinleaf	SC		S3	G5	Plant
<i>Oporornis formosus</i>	Kentucky Warbler	THR		S1S2B	G5	Bird
<i>Southern dry-mesic forest</i>	Southern Dry-mesic Forest	NA		S3	G4	Community
<i>Southern mesic forest</i>	Southern Mesic Forest	NA		S3	G3?	Community
016N001E						
<i>Moist cliff</i>	Moist Cliff	NA		S4	GNR	Community
<i>Pine relict</i>	Pine Relict	NA		S2	G4	Community
<i>Stream--fast, hard, cold</i>	Stream--Fast, Hard, Cold	NA		S4	GNR	Community-

Town Range	Scientific Name	Common Name	State Status	Federal Status	State Rank	Global Rank	Group Name
016N001W	<i>Clinostomus elongatus</i>	Redside Dace	SC/N		S3	G3G4	Fish-
	<i>Glyptemys insculpta</i>	Wood Turtle	THR		S2	G4	Turtle-
	<i>Liodessus cantralli</i>	Cantrall's Bog Beetle	SC/N		S1S2	GNR	Beetle-
016N002W	<i>Alder thicket</i>	Alder Thicket	NA		S4	G4	Community-
	<i>Ammodramus henslowii</i>	Henslow's Sparrow	THR		S3B	G4	Bird
	<i>Bat Hibernaculum</i>	Bat Hibernaculum	SC		S3	GNR	Other
	<i>Clinostomus elongatus</i>	Redside Dace	SC/N		S3	G3G4	Fish-
	<i>Dendroica cerulea</i>	Cerulean Warbler	THR		S2S3B	G4	Bird
	<i>Empidonax virescens</i>	Acadian Flycatcher	THR		S3B	G5	Bird
	<i>Emydoidea blandingii</i>	Blanding's Turtle	THR		S3	G4	Turtle-
	<i>Forested seep</i>	Forested Seep	NA		S2	GNR	Community-
	<i>Glyptemys insculpta</i>	Wood Turtle	THR		S2	G4	Turtle-
	<i>Herp Hibernaculum</i>	Herp Hibernaculum	SC		SU	GNR	Other
	<i>Myotis septentrionalis</i>	Northern Long-eared Bat	SC/N		S3	G4	Mammal
	<i>Southern dry-mesic forest</i>	Southern Dry-mesic Forest	NA		S3	G4	Community
	<i>Southern sedge meadow</i>	Southern Sedge Meadow	NA		S3	G4?	Community-
016N003W	<i>Bat Hibernaculum</i>	Bat Hibernaculum	SC		S3	GNR	Other
	<i>Crotalus horridus</i>	Timber Rattlesnake	SC/P		S2S3	G4	Snake
	<i>Dry prairie</i>	Dry Prairie	NA		S3	G3	Community
	<i>Myotis septentrionalis</i>	Northern Long-eared Bat	SC/N		S3	G4	Mammal
	<i>Polytaenia nuttallii</i>	Prairie Parsley	THR		S3	G5	Plant
	<i>Southern dry forest</i>	Southern Dry Forest	NA		S3	G4	Community
016N004W	<i>Crotalus horridus</i>	Timber Rattlesnake	SC/P		S2S3	G4	Snake
	<i>Haliaeetus leucocephalus</i>	Bald Eagle	SC/P		S4B,S2N	G5	Bird-
016N005W	<i>Dry-mesic prairie</i>	Dry-mesic Prairie	NA		S2	G3	Community
	<i>Microseris cuspidata</i>	Prairie False-dandelion	SC		S2	G5	Plant
	<i>Sand barrens</i>	Sand Barrens	NA		SU	GNR	Community
	<i>Southern sedge meadow</i>	Southern Sedge Meadow	NA		S3	G4?	Community-
016N007W	<i>Neurocordulia molesta</i>	Smoky Shadowfly	SC/N		S2S3	G4	Dragonfly-
016N008W	<i>Neurocordulia molesta</i>	Smoky Shadowfly	SC/N		S2S3	G4	Dragonfly-
017N001E	<i>Dry cliff</i>	Dry Cliff	NA		S4	G4G5	Community
	<i>Eleocharis engelmannii</i>	Engelmann Spike-rush	SC		S1	G4G5Q	Plant-
	<i>Floodplain forest</i>	Floodplain Forest	NA		S3	G3?	Community-
	<i>Lycaeides melissa samuelis</i>	Karner Blue	SC/FL	LE	S3	G5T2	Butterfly
	<i>Moist cliff</i>	Moist Cliff	NA		S4	GNR	Community
	<i>Northern dry forest</i>	Northern Dry Forest	NA		S3	G3?	Community
	<i>Northern dry-mesic forest</i>	Northern Dry-mesic Forest	NA		S3	G4	Community
	<i>Solidago sciaphila</i>	Shadowy Goldenrod	SC		S3	G3G4	Plant
	<i>Southern dry-mesic forest</i>	Southern Dry-mesic Forest	NA		S3	G4	Community
	<i>Talinum rugospermum</i>	Prairie Fame-flower	SC		S3	G3G4	Plant
017N001W	<i>Arethusa bulbosa</i>	Swamp-pink	SC		S3	G4	Plant-

Town Range

Scientific Name	Common Name	State Status	Federal Status	State Rank	Global Rank	Group Name
<i>Emydoidea blandingii</i>	Blanding's Turtle	THR		S3	G4	Turtle-
<i>Glyptemys insculpta</i>	Wood Turtle	THR		S2	G4	Turtle-
<i>Southern dry-mesic forest</i>	Southern Dry-mesic Forest	NA		S3	G4	Community
017N002W						
<i>Aflexia rubranura</i>	Red-tailed Prairie Leafhopper	END		S2	G2	Leafhopper
<i>Alder thicket</i>	Alder Thicket	NA		S4	G4	Community-
<i>Artemisia dracunculus</i>	Dragon Wormwood	SC		S2	G5	Plant
<i>Canis lupus</i>	Gray Wolf	SC/FL	LE	S2	G4	Mammal
<i>Carex folliculata</i>	Long Sedge	SC		S3	G4G5	Plant-
<i>Carex laevivaginata</i>	Smooth-sheath Sedge	END		S1	G5	Plant-
<i>Chlosyne gorgone</i>	Gorgone Checker Spot	SC/N		S3	G5	Butterfly
<i>Cicindela lepida</i>	Little White Tiger Beetle	SC/N		S2	G3G4	Beetle
<i>Cicindela patruela huberi</i>	A Tiger Beetle	SC/N		S3	G3T3	Beetle
<i>Erynnis persius</i>	Persius Dusky Wing	SC/N		S2	G5	Butterfly
<i>Gentiana alba</i>	Yellow Gentian	THR		S3	G4	Plant
<i>Hesperia leonardus</i>	Leonard's Skipper	SC/N		S3	G4	Butterfly
<i>Lycaeides melissa samuelis</i>	Karner Blue	SC/FL	LE	S3	G5T2	Butterfly
<i>Northern wet-mesic forest</i>	Northern Wet-mesic Forest	NA		S3S4	G3?	Community-
<i>Pituophis catenifer</i>	Gophersnake	SC/P		S2S3	G5	Snake
<i>Poa paludigena</i>	Bog Bluegrass	THR		S3	G3	Plant-
<i>Polyamia dilata</i>	Prairie Leafhopper	THR		S2	GNR	Leafhopper
<i>Polytaenia nuttallii</i>	Prairie Parsley	THR		S3	G5	Plant
<i>Prenanthes aspera</i>	Rough Rattlesnake-root	END		S2	G4?	Plant
<i>Schinia indiana</i>	Phlox Moth	END		S2S3	G2G4	Moth
<i>Springs and spring runs, hard</i>	Springs and Spring Runs, Hard	NA		S4	GNR	Community-
<i>Stream--fast, hard, cold</i>	Stream--Fast, Hard, Cold	NA		S4	GNR	Community-
<i>Talinum rugospermum</i>	Prairie Fame-flower	SC		S3	G3G4	Plant
017N003W						
<i>Aflexia rubranura</i>	Red-tailed Prairie Leafhopper	END		S2	G2	Leafhopper
<i>Alder thicket</i>	Alder Thicket	NA		S4	G4	Community-
<i>Canis lupus</i>	Gray Wolf	SC/FL	LE	S2	G4	Mammal
<i>Carex folliculata</i>	Long Sedge	SC		S3	G4G5	Plant-
<i>Chlosyne gorgone</i>	Gorgone Checker Spot	SC/N		S3	G5	Butterfly
<i>Emydoidea blandingii</i>	Blanding's Turtle	THR		S3	G4	Turtle-
<i>Erynnis persius</i>	Persius Dusky Wing	SC/N		S2	G5	Butterfly
<i>Glyptemys insculpta</i>	Wood Turtle	THR		S2	G4	Turtle-
<i>Hesperia leonardus</i>	Leonard's Skipper	SC/N		S3	G4	Butterfly
<i>Hesperia ottoe</i>	Ottoe Skipper	SC/N		S2	G3G4	Butterfly
<i>Lycaeides melissa samuelis</i>	Karner Blue	SC/FL	LE	S3	G5T2	Butterfly
<i>Lythrurus umbratilis</i>	Redfin Shiner	THR		S2	G5	Fish-
<i>Northern wet-mesic forest</i>	Northern Wet-mesic Forest	NA		S3S4	G3?	Community-
<i>Ophisaurus attenuatus</i>	Slender Glass Lizard	END		S1	G5	Lizard
<i>Opuntia fragilis</i>	Brittle Prickly-pear	THR		S3	G4G5	Plant
<i>Paraphlepsius maculosus</i>	A Leafhopper	SC/N		S1	GNR	Leafhopper
<i>Phyciodes batesii lakota</i>	Lakota Crescent	SC/N		S3	G4T4	Butterfly
<i>Pituophis catenifer</i>	Gophersnake	SC/P		S2S3	G5	Snake
<i>Polytaenia nuttallii</i>	Prairie Parsley	THR		S3	G5	Plant
<i>Schinia indiana</i>	Phlox Moth	END		S2S3	G2G4	Moth
<i>Southern sedge meadow</i>	Southern Sedge Meadow	NA		S3	G4?	Community-

Town Range	Scientific Name	Common Name	State Status	Federal Status	State Rank	Global Rank	Group Name
	<i>Springs and spring runs, hard</i>	Springs and Spring Runs, Hard	NA		S4	GNR	Community-
	<i>Talinum rugospermum</i>	Prairie Fame-flower	SC		S3	G3G4	Plant
	<i>White pine-red maple swamp</i>	White Pine-Red Maple Swamp	NA		S2	G3G4	Community-
017N004W	<i>Calylophus serrulatus</i>	Yellow Evening Primrose	SC		S2	G5	Plant
	<i>Dry-mesic prairie</i>	Dry-mesic Prairie	NA		S2	G3	Community
	<i>Glyptemys insculpta</i>	Wood Turtle	THR		S2	G4	Turtle-
	<i>Microseris cuspidata</i>	Prairie False-dandelion	SC		S2	G5	Plant
	<i>Napaea dioica</i>	Glade Mallow	SC		S3	G4	Plant-
	<i>Pituophis catenifer</i>	Gophersnake	SC/P		S2S3	G5	Snake
	<i>Polytaenia nuttallii</i>	Prairie Parsley	THR		S3	G5	Plant
	<i>Sand barrens</i>	Sand Barrens	NA		SU	GNR	Community
	<i>Southern sedge meadow</i>	Southern Sedge Meadow	NA		S3	G4?	Community-
	<i>Spiza americana</i>	Dickcissel	SC/M		S3B	G5	Bird
	<i>Talinum rugospermum</i>	Prairie Fame-flower	SC		S3	G3G4	Plant
017N005W	<i>Dry-mesic prairie</i>	Dry-mesic Prairie	NA		S2	G3	Community
	<i>Microseris cuspidata</i>	Prairie False-dandelion	SC		S2	G5	Plant
	<i>Sand barrens</i>	Sand Barrens	NA		SU	GNR	Community
	<i>Southern sedge meadow</i>	Southern Sedge Meadow	NA		S3	G4?	Community-
017N007W	<i>Neurocordulia molesta</i>	Smoky Shadowfly	SC/N		S2S3	G4	Dragonfly-
017N008W	<i>Etheostoma clarum</i>	Western Sand Darter	SC/N		S3	G3	Fish-
	<i>Neurocordulia molesta</i>	Smoky Shadowfly	SC/N		S2S3	G4	Dragonfly-
017N009W	<i>Neurocordulia molesta</i>	Smoky Shadowfly	SC/N		S2S3	G4	Dragonfly-
018N001E	<i>Agabus bicolor</i>	A Predaceous Diving Beetle	SC/N		S3	GNR	Beetle-
	<i>Artemisia frigida</i>	Prairie Sagebrush	SC		S2	G5	Plant
	<i>Carex straminea</i>	Straw Sedge	SC		S1	G5	Plant-
	<i>Didiplis diandra</i>	Water-purslane	SC		S1	G5	Plant-
	<i>Emydoidea blandingii</i>	Blanding's Turtle	THR		S3	G4	Turtle-
	<i>Haliphus pantherinus</i>	A Crawling Water Beetle	SC/N		S2S3	GNR	Beetle-
	<i>Liodessus cantralli</i>	Cantrall's Bog Beetle	SC/N		S1S2	GNR	Beetle-
	<i>Myriophyllum farwellii</i>	Farwell's Water-milfoil	SC		S3	G5	Plant-
018N001W	<i>Ardea alba</i>	Great Egret	THR		S2B	G5	Bird-
	<i>Bartonia virginica</i>	Yellow Screwstem	SC		S3	G5	Plant-
	<i>Bird Rookery</i>	Bird Rookery	SC		SU	G5	Other
	<i>Chlidonias niger</i>	Black Tern	SC/M		S2B	G4	Bird-
	<i>Emydoidea blandingii</i>	Blanding's Turtle	THR		S3	G4	Turtle-
	<i>Epilobium palustre</i>	Marsh Willow-herb	SC		S3	G5	Plant-
	<i>Lanius ludovicianus</i>	Loggerhead Shrike	END		S1B	G4	Bird
	<i>Rallus elegans</i>	King Rail	SC/M		S1B	G4	Bird-
	<i>Sorex hoyi</i>	Pygmy Shrew	SC/N		S3S4	G5	Mammal
018N002W	<i>Aflexia rubranura</i>	Red-tailed Prairie Leafhopper	END		S2	G2	Leafhopper
	<i>Asclepias ovalifolia</i>	Dwarf Milkweed	THR		S3	G5?	Plant
	<i>Canis lupus</i>	Gray Wolf	SC/FL	LE	S2	G4	Mammal

Town Range

Scientific Name	Common Name	State Status	Federal Status	State Rank	Global Rank	Group Name
<i>Catocala abbreviatella</i>	Abbreviated Underwing Moth	SC/N		S3	G4	Moth
<i>Chondestes grammacus</i>	Lark Sparrow	SC/M		S2B	G5	Bird
<i>Emydoidea blandingii</i>	Blanding's Turtle	THR		S3	G4	Turtle-
<i>Gentiana alba</i>	Yellow Gentian	THR		S3	G4	Plant
<i>Glyptemys insculpta</i>	Wood Turtle	THR		S2	G4	Turtle-
<i>Grammia phyllira</i>	Phyllira Tiger Moth	SC/N		S2	G4	Moth
<i>Hesperia leonardus</i>	Leonard's Skipper	SC/N		S3	G4	Butterfly
<i>Lycaeides melissa samuelis</i>	Karner Blue	SC/FL	LE	S3	G5T2	Butterfly
<i>Opuntia fragilis</i>	Brittle Prickly-pear	THR		S3	G4G5	Plant
<i>Pine barrens</i>	Pine Barrens	NA		S2	G2	Community
<i>Pituophis catenifer</i>	Gophersnake	SC/P		S2S3	G5	Snake
<i>Poa paludigena</i>	Bog Bluegrass	THR		S3	G3	Plant~
<i>Polytaenia nuttallii</i>	Prairie Parsley	THR		S3	G5	Plant
<i>Prenanthes aspera</i>	Rough Rattlesnake-root	END		S2	G4?	Plant
<i>Schinia indiana</i>	Phlox Moth	END		S2S3	G2G4	Moth
<i>Solidago sciaphila</i>	Shadowy Goldenrod	SC		S3	G3G4	Plant
<i>Thelypteris simulata</i>	Bog Fern	SC		S3	G4G5	Plant~
018N003W						
<i>Bartramia longicauda</i>	Upland Sandpiper	SC/M		S2B	G5	Bird
<i>Canis lupus</i>	Gray Wolf	SC/FL	LE	S2	G4	Mammal
<i>Carex cumulata</i>	Clustered Sedge	SC		S2	G4?	Plant~
<i>Carex folliculata</i>	Long Sedge	SC		S3	G4G5	Plant~
<i>Catocala whitneyi</i>	Whitney's Underwing Moth	SC/N		S3	G3G4	Moth
<i>Diadophis punctatus edwardsii</i>	Northern Ring-necked Snake	SC/H		S3?	G5T5	Snake
<i>Emydoidea blandingii</i>	Blanding's Turtle	THR		S3	G4	Turtle-
<i>Gentiana alba</i>	Yellow Gentian	THR		S3	G4	Plant
<i>Glyptemys insculpta</i>	Wood Turtle	THR		S2	G4	Turtle-
<i>Hemidactylium scutatum</i>	Four-toed Salamander	SC/H		S3	G5	Salamander~
<i>Hesperia leonardus</i>	Leonard's Skipper	SC/N		S3	G4	Butterfly
<i>Hesperia ottoe</i>	Ottoe Skipper	SC/N		S2	G3G4	Butterfly
<i>Lycaeides melissa samuelis</i>	Karner Blue	SC/FL	LE	S3	G5T2	Butterfly
<i>Megacephala virginica</i>	Virginia Big-headed Tiger Beetle	SC/N		S1	G5	Beetle
<i>Oak barrens</i>	Oak Barrens	NA		S2	G2?	Community
<i>Ophisaurus attenuatus</i>	Slender Glass Lizard	END		S1	G5	Lizard
<i>Opuntia fragilis</i>	Brittle Prickly-pear	THR		S3	G4G5	Plant
<i>Phyciodes batesii lakota</i>	Lakota Crescent	SC/N		S3	G4T4	Butterfly
<i>Pine barrens</i>	Pine Barrens	NA		S2	G2	Community
<i>Pituophis catenifer</i>	Gophersnake	SC/P		S2S3	G5	Snake
<i>Poa paludigena</i>	Bog Bluegrass	THR		S3	G3	Plant~
<i>Polygala cruciata</i>	Crossleaf Milkwort	SC		S3	G5	Plant~
<i>Rhexia virginica</i>	Virginia Meadow-beauty	SC		S3	G5	Plant~
<i>Schinia indiana</i>	Phlox Moth	END		S2S3	G2G4	Moth
<i>Scleria triglomerata</i>	Whip Nutrush	SC		S2S3	G5	Plant~
<i>Sturnella neglecta</i>	Western Meadowlark	SC/M		S2B	G5	Bird
<i>Talinum rugospermum</i>	Prairie Fame-flower	SC		S3	G3G4	Plant
<i>Thelypteris simulata</i>	Bog Fern	SC		S3	G4G5	Plant~
018N004W						
<i>Ophisaurus attenuatus</i>	Slender Glass Lizard	END		S1	G5	Lizard
<i>Opuntia fragilis</i>	Brittle Prickly-pear	THR		S3	G4G5	Plant

Town Range	Scientific Name	Common Name	State Status	Federal Status	State Rank	Global Rank	Group Name
	<i>Polytaenia nuttallii</i>	Prairie Parsley	THR		S3	G5	Plant
	<i>Stream--fast, soft, cold</i>	Stream--Fast, Soft, Cold	NA		SU	GNR	Community-
018N006W	<i>Etheostoma clarum</i>	Western Sand Darter	SC/N		S3	G3	Fish-
	<i>Moxostoma carinatum</i>	River Redhorse	THR		S2	G4	Fish-
018N007W	<i>Etheostoma clarum</i>	Western Sand Darter	SC/N		S3	G3	Fish-
	<i>Neurocordulia molesta</i>	Smoky Shadowfly	SC/N		S2S3	G4	Dragonfly-
018N008W	<i>Etheostoma clarum</i>	Western Sand Darter	SC/N		S3	G3	Fish-
	<i>Neurocordulia molesta</i>	Smoky Shadowfly	SC/N		S2S3	G4	Dragonfly-
018N009W	<i>Neurocordulia molesta</i>	Smoky Shadowfly	SC/N		S2S3	G4	Dragonfly-
019N001E	<i>Ammodramus leconteii</i>	Le Conte's Sparrow	SC/M		S2S3B	G4	Bird-
	<i>Arphia conspersa</i>	Speckled Rangeland Grasshopper	SC/N		S2	G5	Grasshopper
	<i>Bartonia paniculata</i>	Twining Screwstem	SC		S1	G5	Plant-
	<i>Bartonia virginica</i>	Yellow Screwstem	SC		S3	G5	Plant-
	<i>Botaurus lentiginosus</i>	American Bittern	SC/M		S3B	G4	Bird-
	<i>Callophrys irus</i>	Frosted Elfin	THR		S1	G3	Butterfly
	<i>Canis lupus</i>	Gray Wolf	SC/FL	LE	S2	G4	Mammal
	<i>Carex cumulata</i>	Clustered Sedge	SC		S2	G4?	Plant-
	<i>Carex folliculata</i>	Long Sedge	SC		S3	G4G5	Plant-
	<i>Central poor fen</i>	Central Poor Fen	NA		S3	G3G4	Community-
	<i>Central sands pine-oak forest</i>	Central Sands Pine-Oak Forest	NA		S3	G3	Community
	<i>Ceratophyllum echinatum</i>	Prickly Hornwort	SC		S2	G4?	Plant-
	<i>Chlidonias niger</i>	Black Tern	SC/M		S2B	G4	Bird-
	<i>Cicindela patruela huberi</i>	A Tiger Beetle	SC/N		S3	G3T3	Beetle
	<i>Emergent marsh</i>	Emergent Marsh	NA		S4	G4	Community-
	<i>Emydoidea blandingii</i>	Blanding's Turtle	THR		S3	G4	Turtle-
	<i>Erynnis persius</i>	Persius Dusky Wing	SC/N		S2	G5	Butterfly
	<i>Euphyes bimacula</i>	Two-spotted Skipper	SC/N		S3	G4	Butterfly-
	<i>Hardwood swamp</i>	Hardwood Swamp	NA		S3	G4	Community-
	<i>Lycaeides melissa samuelis</i>	Karner Blue	SC/FL	LE	S3	G5T2	Butterfly
	<i>Northern sedge meadow</i>	Northern Sedge Meadow	NA		S3	G4	Community-
	<i>Northern wet forest</i>	Northern Wet Forest	NA		S4	G4	Community-
	<i>Open bog</i>	Open Bog	NA		S4	G5	Community-
	<i>Polygala cruciata</i>	Crossleaf Milkwort	SC		S3	G5	Plant-
	<i>Tamarack (poor) swamp</i>	Tamarack (Poor) Swamp	NA		S3	G4	Community-
	<i>Thelypteris simulata</i>	Bog Fern	SC		S3	G4G5	Plant-
	<i>White pine-red maple swamp</i>	White Pine-Red Maple Swamp	NA		S2	G3G4	Community-
019N001W	<i>Atrytonopsis hianna</i>	Dusted Skipper	SC/N		S3	G4G5	Butterfly
	<i>Canis lupus</i>	Gray Wolf	SC/FL	LE	S2	G4	Mammal
	<i>Carex folliculata</i>	Long Sedge	SC		S3	G4G5	Plant-
	<i>Haliaeetus leucocephalus</i>	Bald Eagle	SC/P		S4B,S2N	G5	Bird-
	<i>Hesperia metea</i>	Cobweb Skipper	SC/N		S2	G4G5	Butterfly
	<i>Lycaeides melissa samuelis</i>	Karner Blue	SC/FL	LE	S3	G5T2	Butterfly

Town Range		State	Federal	State	Global	Group
Scientific Name	Common Name	Status	Status	Rank	Rank	Name
<i>Northern dry forest</i>	Northern Dry Forest	NA		S3	G3?	Community
<i>Solidago sciaphila</i>	Shadowy Goldenrod	SC		S3	G3G4	Plant
<i>Thelypteris simulata</i>	Bog Fern	SC		S3	G4G5	Plant-
019N002E						
<i>Canis lupus</i>	Gray Wolf	SC/FL	LE	S2	G4	Mammal
<i>Central poor fen</i>	Central Poor Fen	NA		S3	G3G4	Community-
<i>Polygala cruciata</i>	Crossleaf Milkwort	SC		S3	G5	Plant-
019N002W						
<i>Alder thicket</i>	Alder Thicket	NA		S4	G4	Community-
<i>Asclepias ovalifolia</i>	Dwarf Milkweed	THR		S3	G5?	Plant
<i>Bartonia virginica</i>	Yellow Screwstem	SC		S3	G5	Plant-
<i>Canis lupus</i>	Gray Wolf	SC/FL	LE	S2	G4	Mammal
<i>Carex folliculata</i>	Long Sedge	SC		S3	G4G5	Plant-
<i>Diadophis punctatus edwardsii</i>	Northern Ring-necked Snake	SC/H		S3?	G5T5	Snake
<i>Emydoidea blandingii</i>	Blanding's Turtle	THR		S3	G4	Turtle-
<i>Erynnis persius</i>	Persius Dusky Wing	SC/N		S2	G5	Butterfly
<i>Glyptemys insculpta</i>	Wood Turtle	THR		S2	G4	Turtle-
<i>Hesperia leonardus</i>	Leonard's Skipper	SC/N		S3	G4	Butterfly
<i>Lycaeides melissa samuelis</i>	Karner Blue	SC/FL	LE	S3	G5T2	Butterfly
<i>Northern wet-mesic forest</i>	Northern Wet-mesic Forest	NA		S3S4	G3?	Community-
<i>Ophisaurus attenuatus</i>	Slender Glass Lizard	END		S1	G5	Lizard
<i>Pandion haliaetus</i>	Osprey	THR		S4B	G5	Bird-
<i>Poa paludigena</i>	Bog Bluegrass	THR		S3	G3	Plant-
<i>Poa sylvestris</i>	Woodland Bluegrass	SC		S1	G5	Plant
<i>Schinia indiana</i>	Phlox Moth	END		S2S3	G2G4	Moth
<i>Seiurus motacilla</i>	Louisiana Waterthrush	SC/M		S3B	G5	Bird-
<i>Sistrurus catenatus catenatus</i>	Eastern Massasauga	END	C	S1	G3G4T3	Snake-
<i>Solidago sciaphila</i>	Shadowy Goldenrod	SC		S3	G3G4	Plant
<i>Southern dry forest</i>	Southern Dry Forest	NA		S3	G4	Community
<i>Stream--fast, soft, cold</i>	Stream--Fast, Soft, Cold	NA		SU	GNR	Community-
<i>Talinum rugospermum</i>	Prairie Fame-flower	SC		S3	G3G4	Plant
<i>Thelypteris simulata</i>	Bog Fern	SC		S3	G4G5	Plant-
019N003W						
<i>Bartonia virginica</i>	Yellow Screwstem	SC		S3	G5	Plant-
<i>Canis lupus</i>	Gray Wolf	SC/FL	LE	S2	G4	Mammal
<i>Carex folliculata</i>	Long Sedge	SC		S3	G4G5	Plant-
<i>Emydoidea blandingii</i>	Blanding's Turtle	THR		S3	G4	Turtle-
<i>Erynnis persius</i>	Persius Dusky Wing	SC/N		S2	G5	Butterfly
<i>Haliaeetus leucocephalus</i>	Bald Eagle	SC/P		S4B,S2N	G5	Bird-
<i>Hesperia leonardus</i>	Leonard's Skipper	SC/N		S3	G4	Butterfly
<i>Lycaeides melissa samuelis</i>	Karner Blue	SC/FL	LE	S3	G5T2	Butterfly
<i>Ophisaurus attenuatus</i>	Slender Glass Lizard	END		S1	G5	Lizard
<i>Pandion haliaetus</i>	Osprey	THR		S4B	G5	Bird-
<i>Phyciodes batesii lakota</i>	Lakota Crescent	SC/N		S3	G4T4	Butterfly
<i>Schinia indiana</i>	Phlox Moth	END		S2S3	G2G4	Moth
<i>Talinum rugospermum</i>	Prairie Fame-flower	SC		S3	G3G4	Plant
019N004W						
<i>Anguilla rostrata</i>	American Eel	SC/N		S2	G4	Fish-
<i>Etheostoma clarum</i>	Western Sand Darter	SC/N		S3	G3	Fish-

Town Range		State	Federal	State	Global	Group
Scientific Name	Common Name	Status	Status	Rank	Rank	Name
<i>Moxostoma carinatum</i>	River Redhorse	THR		S2	G4	Fish-
<i>Neurocordulia molesta</i>	Smoky Shadowfly	SC/N		S2S3	G4	Dragonfly-
<i>Northern dry-mesic forest</i>	Northern Dry-mesic Forest	NA		S3	G4	Community
<i>Percina evides</i>	Gilt Darter	THR		S2	G4	Fish-
<i>Solidago sciaphila</i>	Shadowy Goldenrod	SC		S3	G3G4	Plant
<i>Stream--fast, soft, cold</i>	Stream--Fast, Soft, Cold	NA		SU	GNR	Community-
<i>Stream--slow, soft, cold</i>	Stream--Slow, Soft, Cold	NA		SU	GNR	Community-
019N005W						
<i>Asclepias lanuginosa</i>	Woolly Milkweed	THR		S1	G4?	Plant
<i>Etheostoma clarum</i>	Western Sand Darter	SC/N		S3	G3	Fish-
<i>Moxostoma carinatum</i>	River Redhorse	THR		S2	G4	Fish-
<i>Neurocordulia molesta</i>	Smoky Shadowfly	SC/N		S2S3	G4	Dragonfly-
<i>Northern dry-mesic forest</i>	Northern Dry-mesic Forest	NA		S3	G4	Community
<i>Percina evides</i>	Gilt Darter	THR		S2	G4	Fish-
<i>Pine barrens</i>	Pine Barrens	NA		S2	G2	Community
<i>Solidago sciaphila</i>	Shadowy Goldenrod	SC		S3	G3G4	Plant
019N006W						
<i>Etheostoma clarum</i>	Western Sand Darter	SC/N		S3	G3	Fish-
<i>Moxostoma carinatum</i>	River Redhorse	THR		S2	G4	Fish-
<i>Neurocordulia molesta</i>	Smoky Shadowfly	SC/N		S2S3	G4	Dragonfly-
019N007W						
<i>Etheostoma clarum</i>	Western Sand Darter	SC/N		S3	G3	Fish-
<i>Neurocordulia molesta</i>	Smoky Shadowfly	SC/N		S2S3	G4	Dragonfly-
020N001E						
<i>Canis lupus</i>	Gray Wolf	SC/FL	LE	S2	G4	Mammal
<i>Emydoidea blandingii</i>	Blanding's Turtle	THR		S3	G4	Turtle-
020N001W						
<i>Canis lupus</i>	Gray Wolf	SC/FL	LE	S2	G4	Mammal
020N002E						
<i>Canis lupus</i>	Gray Wolf	SC/FL	LE	S2	G4	Mammal
<i>Emydoidea blandingii</i>	Blanding's Turtle	THR		S3	G4	Turtle-
020N002W						
<i>Canis lupus</i>	Gray Wolf	SC/FL	LE	S2	G4	Mammal
<i>Sistrurus catenatus catenatus</i>	Eastern Massasauga	END	C	S1	G3G4T3	Snake-
<i>Southern dry forest</i>	Southern Dry Forest	NA		S3	G4	Community
020N003W						
<i>Lycaeides melissa samuelis</i>	Karner Blue	SC/FL	LE	S3	G5T2	Butterfly
<i>Ophisaurus attenuatus</i>	Slender Glass Lizard	END		S1	G5	Lizard
020N004W						
<i>Etheostoma clarum</i>	Western Sand Darter	SC/N		S3	G3	Fish-
<i>Moxostoma carinatum</i>	River Redhorse	THR		S2	G4	Fish-
<i>Neurocordulia molesta</i>	Smoky Shadowfly	SC/N		S2S3	G4	Dragonfly-
<i>Percina evides</i>	Gilt Darter	THR		S2	G4	Fish-
<i>Tritogonia verrucosa</i>	Buckhorn	THR		S2	G4G5	Mussel-
020N005W						
<i>Etheostoma clarum</i>	Western Sand Darter	SC/N		S3	G3	Fish-
<i>Moxostoma carinatum</i>	River Redhorse	THR		S2	G4	Fish-
<i>Neurocordulia molesta</i>	Smoky Shadowfly	SC/N		S2S3	G4	Dragonfly-
<i>Percina evides</i>	Gilt Darter	THR		S2	G4	Fish-
<i>Tritogonia verrucosa</i>	Buckhorn	THR		S2	G4G5	Mussel-

Town Range	Scientific Name	Common Name	State Status	Federal Status	State Rank	Global Rank	Group Name
021N004W	<i>Etheostoma clarum</i>	Western Sand Darter	SC/N		S3	G3	Fish-
	<i>Percina evides</i>	Gilt Darter	THR		S2	G4	Fish-
	<i>Tritogonia verrucosa</i>	Buckhorn	THR		S2	G4G5	Mussel-
022N003W	<i>Percina evides</i>	Gilt Darter	THR		S2	G4	Fish-
022N004W	<i>Percina evides</i>	Gilt Darter	THR		S2	G4	Fish-

This report lists locations for all elements occurring in Monroe County, since many element occurrences cross county boundaries, it may also list townships from additional counties.

STATE NATURAL AREAS in MONROE COUNTY

Sand Creek Pines

Location

Within Sand Creek Fishery Area, Monroe County. T19N-R5W, Section 34. 150 acres.

Description

The primary feature of Sand Creek Pines is the undeveloped mile-long corridor containing Sand Creek, a cold, fast, sandy bottom soft water stream that supports native brook trout. An alder thicket borders the stream with fen-like seepages along its banks with angelica, purple avens, swamp aster, common rush, and skunk cabbage. Beds of Canadian waterweed are common in the stream. White pine is dominant on the north-facing slopes with red pine locally abundant as naturally occurring groves. Jack pine, oaks, and red maple are also present. The level uplands away from the stream are a mix of overgrown Jack pine-oak barrens with red cedar, pine plantations, and old field. The understory is dense with prickly-ash, and hazelnut. Scattered prairie species are found in areas with an open understory with such plants as prairie dropseed, Indian grass, prairie larkspur, lead-plant, smooth blue aster, short green milkweed, cream wild indigo, and sand evening-primrose. The feeder creek, Cascade Creek, has a 10-foot high cascading sandstone waterfall. The forest is more mesic here with second-growth red maple, basswood, bitternut hickory, and herbs such as maidenhair fern, yellow blue-bead-lily, and bishop's cap. The rare cliff goldenrod (*Solidago sciaphila*) and woolly milkweed (*Asclepias lanuginosa*) occur on the steep sandy bluffs on the north side of Sand Creek. Also present are big blue-stem, poverty grass, butterfly weed, showy goldenrod, field goldenrod, hairy goldenrod, and bracken fern. Sand Creek Pines is owned by the DNR and was designated a State Natural Area in 2002.

LaCrosse River Trail Prairie

Location

Along the La Crosse River State Trail between Bangor and Sparta, Monroe and La Crosse Counties. T16N-R5W, Sections 2, 3. T17N-R4W, Sections 27, 28, 29, 31, 32. T17N-R5W, Sections 35, 36. 70 acres.

Description

The La Crosse River Trail Prairie is situated in the Western Coulees and Ridges ecoregion of Wisconsin and features stretches of dry-mesic to dry prairie in a former railroad right-of-way. The long, linear remnants lie on a sandy terrace of the La Crosse River and are indicative of the once vast prairie and savanna complex that covered this portion of the state. The prairie flora is diverse with big and little blue-stem, Indian grass, and switch grass dominating. The drier Monroe County remnant includes species such as white wild indigo, cream wild indigo, white and purple prairie clover, lead-plant, prairie bush-clover, plains larkspur, pasqueflower, prairie coreopsis, stiff cinquefoil, sky blue and silky aster, thimbleweed, and more. The La Crosse County segment is more mesic

with a different assemblage of species including heath aster, compass plant, stiff and showy goldenrod, and New Jersey tea. A few wet pockets also exist with cat-tail, sedges, prairie cord grass, cup plant and Canada milk-vetch. Scattered along the right-of-way are young bur oak openings and small sand blows being stabilized by false heather. The La Crosse River Trail Prairie is owned by the DNR and was designated a State Natural Area in 1983

Eureka Maple Woods

Location

Monroe County. T15N-R4W, Section 32, 33. 135 acres.

Description

Eureka Maple Woods lies on a steep, north-facing slope above Timber Coulee Creek, a tributary of Coon Creek. The forest is dominated by small to medium sized sugar maple and basswood, along with red oak, yellow birch, white ash and red elm. Large trees are uncommon. However, the herbaceous flora is exceptionally rich, containing such uncommon plants as squirrel corn, twinleaf, Goldie's fern, narrow-leaved spleenwort, walking fern, leafcup, and adam and eve orchid. Common mesic ground layer species are abundant, providing a tremendous springtime floral display. The shrub layer is also diverse with witch hazel, leatherwood, hazelnut, bladder nut, viburnums, and dogwoods. Bird species include several species sensitive to forest fragmentation such as cerulean warbler (*Dendroica cerulea*), Acadian flycatcher (*Empidonax vireescens*), ovenbird, yellow-throated vireo, American redstart, blue-gray gnatcatcher, and wood thrush. Soils are Norden loams thinly covering the steep slopes. Eureka Maple Woods is owned by the DNR and was designated a State Natural Area in 1989

Fort McCoy Barrens

Location

Within the Fort McCoy Military Installation, Monroe County. T17N-R2W, Sections 16, 17, 18. T17N-R3W, Sections 1, 2, 13. T18N-R3W, Sections 35, 36. T19N-R2W, Sections 6-9. 435 acres.

Description

Fort McCoy Barrens consists of three distinct sites: Silver Creek, Clear Creek and an Oak Barrens community. The Oak Barrens community is one of the least disturbed oak barrens remaining in Wisconsin. Much of the area is open prairie with scattered black and Hill's oaks with bur and white oak less common. The understory is highly diverse with species including little blue-stem, June grass, poverty oats grass, goat's-rue, bird's-foot violet, lance-leaved loosestrife, and wild lupine. Populations of at least four uncommon or rare plants occur in the area: prairie fame-flower (*Talinum rugospermum*), tall nut-grass (*Scleria triglomerata*), large-flowered penstemon, and prairie larkspur (*Delphinium*

carolinianum). Animal life is also diverse within the Fort McCoy natural areas and includes several uncommon or declining species including upland sandpiper (*Bartramia longicauda*), grasshopper sparrow (*Ammodramus savannarum*), and Gorgone checkerspot (*Cholsyne gorgone cariota*). The federally endangered Karner blue butterfly (*Lycaeides melissa samuelis*) is also present. Both Silver and Clear Creeks are spring-fed, headwater riparian communities in pristine condition. Silver Creek is a fast, cold, hard water stream fed by two major springs that emanate from sandstone caves and seepages along its length. Sedges dominate the open areas along the creek with speckled alder and winterberry. Rare plants include bog bluegrass (*Poa paludigena*), long sedge (*Carex folliculata*), tufted hair grass (*Deschampsia cespitosa*), and cliff goldenrod (*Solidago sciaphila*). Also of interest are pickerel frog (*Rana palustris*), and Cladonia dimorphoclada, a lichen previously unknown in this region. Clear Creek is a soft, alkaline stream with a sandy bottom. The narrow creek is fed by numerous seepages and numerous rare species occur within the area including an extensive population of Massachussets fern (*Thelypteris simulata*), and the osprey (*Pandion haliaetus*). Fort McCoy Barrens is owned by the U.S Department of Defense and was designated a State Natural Area in 1990 and 1991.

Mill Bluff State Natural Area

Location

Within Mill Bluff State Park, Juneau and Monroe County. T17N-R1E, Sections 12,13, 24. T17N-R2E, Sections 7, 18. 485 acres.

Description

Mill Bluff State Natural Area features a number of spectacular Cambrian sandstone mesas, buttes, and pinnacles that rise above the level bed of an extinct glacial lake. Long Bluff, Ragged Rock, Wildcat Bluff, Bear Bluff, Devil's Monument, Camel's Bluff, Mill Bluff, and Round Bluff are all included within the site. Many of the area bluffs contain 6-12 inches long petroglyphs (rock carvings) that are shaped like bird tracks. Similar to the petroglyphs found 25 miles east in Roche-A-Cri State Park, they date back to Upper Mississippi Indian culture about 400 years ago. The dominant plant community is a xeric forest composed primarily of Hill's oak, Jack pine, red pine, white pine, and white oak. Associated trees include big-tooth aspen, black cherry, red oak, paper birch, and red maple. Many of the sandstone outcroppings contain large red pine. On Long Bluff, the dominance of different trees varies according to aspect with oak and pine more prevalent on the western and southern exposures while red maple is more common on the east side of the bluff, especially on the lower slopes. Low shrubs including early low blueberry, huckleberry, sweet gale, plus bracken fern and Pennsylvania sedge characterize the groundlayer. A few prairie and barrens plant species are present especially on the flats at the base of the bluff's west end. Plants include big blue-stem, little blue-stem, Indian grass, wild lupine, lyre-leaved rock cress, bird's-foot violet, and common rock-rose. Birds include turkey vulture, wood thrush, rufous-sided towhee, eastern wood pewee, ovenbird,

yellow-throated vireo and clay-colored and vesper sparrows. Mill Bluff is owned by the DNR and was designated a State Natural Area in 2002.

Portland Maples

Location

Located within the Coon Creek Fishery Area, Monroe County. T15N-R4W, Sections 28, 33. 102 acres.

Description

Portland Maples features two small, but ecologically significant, tracts of southern mesic forest -- a community type that was once wide-spread in this region of Wisconsin. The northeast-facing slope supports a forest dominated by sugar maple. Also present are basswood, red oak, yellowbud hickory, and white ash. The subcanopy consists of sugar maple, ironwood, and eastern hop-hornbeam. The sparse shrub layer contains elderberry, bladdernut, leatherwood, and hazelnut while the groundlayer contains such species as goldenseal, narrow-leaved spleenwort, and Goldie's fern. Other species include lady, rattlesnake and walking ferns, wild leek, bishop's-cap, red baneberry, nodding wake-robin, wild sarsaparilla, bloodroot, and great water-leaf. Along the creek is a floodplain forest of cottonwood, black willow, and American elm along with mesic forest species including black maple. Birds include the state-threatened Acadian flycatcher (*Empidonax virescens*) and scarlet tanager and ovenbird. Portland Maples is owned by the DNR and was designated a State Natural Area in 2002.

Monroe County Comprehensive Plan Visioning Workshop – August 18th, 19th & 20th, 2009

OVERVIEW

As part of the planning process for the Monroe County Comprehensive Plan, three visioning workshops were held in Monroe County. Workshop #1 was held in Sparta and was attended by 8 people. Workshop #2 was held in Norwalk and was attended by 20 people. Workshop #3 was held in Tomah and was attended by 10 people. Residents of Monroe County were able to provide input and share their opinions on the current condition of the county, future development, and ask questions about the planning process. Participants in the workshop were given the chance to individually fill out a questionnaire reflecting their views on what they value about Monroe County, any threats or challenges, potential positive trends, favorite places, challenges or opportunities facing farmers and ideas relating to new housing development in the town.

Participants were then divided into small groups and provided large maps of the community and were asked to mark areas they would like to see preserved, new public areas, transportation issues and bicycle/pedestrian facilities and safety concerns. Participants were asked to individually provide their top five priorities. After discussion, each individual provided their top answer to create the top priorities for each group.

The general trend was that residents valued the rural characteristics of Monroe County and the individual factors contributing to this, such as the scenic views and natural resources. Not surprisingly, many of the threats/challenges identified pertained to land management and development. The mapping exercise indicated that residents are also greatly concerned over deteriorating roads in the county and their maintenance. The preservation of public land, forests and “historical” sites was also stressed.

The highest priority of residents was preservation, which included the preservation of agriculture and forest land, the scenic/natural beauty and the rural character of Monroe County. Additional priorities reoccurring at different levels of importance included transportation and road maintenance, solving issues around the justice center, quality of life and parks and recreation. The preservation of natural resources, such as streams and rivers and wildlife, was also identified as a high priority for many. The preservation of natural resources was relevant to not only maintaining the rural character of the county, but also to encourage recreation and tourism, which were identified as vital factors to the local economy.

In general, residents feel strongly about the beauty and quality of life in Monroe County, which is not only the county’s biggest asset, but all the biggest threat by drawing in outside populations and development. While the debate of where new development should go and if it should be clustered or scattered seems roughly split down the middle, it is apparent that the rural qualities and natural resources need to be kept in mind to ensure they are retained as an asset for the communities in the future.

GROUP TOP PRIORITIES

This Comprehensive Plan is intended to be an action-oriented plan. It is intended to identify priorities for policies, programs, and activities to assist community residents, developers, and city officials in decision-making.

At the public workshops participants were asked to list their individual top priorities based upon the discussion at the meeting, the maps they created and reviewed, and their own opinions. After everyone completed their list, each person indicated their single TOP priority to the table group. The recorder listed the priorities on flip-chart sheets. Once all of the priorities were listed, the Reporter shared the Table Group priorities with all of the participants. The listing was then posted on the wall for everyone to see. All participants were provided with five sticky dots to vote on their preferred priority. The results are listed below.

Value

- 6 - Scenic Beauty
- 5 - Open country / farmland / Ag-land
- 3 - Rural life
- 3 - Rural area
- 1 - Beauty of the countryside
- 1 - Family oriented
- 1 - All natural resources

Threats / Challenges

- 7 - Minority interest groups impacting majority
- 3 - Housing threat to farmland
- 2 - Financing of highways and bridges
- 2 - Jail space issue is a challenge
- 1 - Erosion / transition from dairy to row crops
- 1 - Too much Government
- 1 - Lack of renewable energy
- 1 - Destructive Special Interest Groups
- 1 - Issues around the new jail
- 1 - Absentee landowners!
- 1 - Finding common ground around contradicting life goals

Assets

- 10 - Beauty of farmland (Tourism)
- 6 - Natural beauty
- 2 - School system
- 1 - Good health care in area
- 1 - Strong future with Ft. McCoy

Individual Worksheet Results

1. What do you VALUE most about Monroe County?

- Rural environment
- Quality of Life
- Low Crime
- Rural characteristic- its beautiful place to live
- Opportunities for outdoor recreation
- Mostly rural areas- no large cities
- Low population
- Agriculture
- Fort McCoy
- Rural Life
- Availability of outdoor recreation
- Small schools
- Quality of life
- Opportunity for tourism
- Job opportunities
- Rural, small town atmosphere
- Rural atmosphere
- Outdoor activities
- Ft. McCoy
- Rural life
- I value the open country, farmland both cropland and woodland and its use for agriculture and hunting and fishing
- The beauty of the country
- The family life, a good place to raise a family, still is in some ways but as everywhere else has gotten too political. Agriculture used to be the main business, not sure now.
- Good ag based community
- Scenic views
- The beauty
- Farm land
- Rural area
- Scenic
- Close enough to bigger city
- Good roads
- Outdoor recreation
- Natural Beauty
- Farming community, saving agriculture land, alternative energy, no factory farms. Farm animal number according to amount of land owned and rented- example: own 4 acres of land you can have 4 cows, 4 horses or 20 pigs or 20 sheep or 40 chickens.
- Our land, the beauty of our area
- If new jail is needed – don't
- Hills and Valleys

- Farmland
- It has quite good recreational facilities
- Beauty, country side
- Beauty of country – rural setting
- Friendly people
- Good area of the state
- Natural beauty
- Friendly people
- Location in the state and Midwest
- Rural characteristic
- Outdoor recreational activities
- Rural values
- Resources, quality of life
- Landscapes
- Water resources
- Wildlife
- We were a rural area!
- Agriculture diversity, Community support of public activities, the beauty of the country land (Ex) forests, streams, lakes, countryside
- Rural communities
- Beauty of the land, farmland
- No comment
- Rural nature of township
- Natural beauty of the landscape – especially the ridge and valley portion of county

2. What are some of the THREATS/CHALLENGES facing Monroe County both today and in the future?

- Managing growth
- Maintaining infrastructure
- In regards to cranberries, water control is a great concern to us. Cranberry laws have been in place for many years and protect us. Do not let FEMA get their hand into it. The permitting process is a nightmare, right to farm will protect us.
- A few group tax to run everybody
- Building in the country
- Country government is disorganized- need an administrator – need to have all departments working together and not against each other
- Need countywide zoning
- The county fair is dying
- Every municipality having a different comp plan and the county is last on list
- Bad communication between public and county officials
- The county is in terrible state when the two cities direct what is going on – a county separated
- Space issue and the Brock study
- erosion and land issues
- Animal agriculture

- Interstate drug traffic
- Haphazard development – increased development
- Pressure from La Crosse
- Development (unregulated)
- Contradictory lifestyles/goals
- Mega farms/maintaining air and water quality
- Jail – what to do with court house
- County highway bridges
- New prison
- Outside landowners
- No jail space
- Loss of tax revenue
- Jail and justice center
- Permanent courthouse
- Lack of renewable energy - We need wind turbines to help with electrical needs. Don't understand why people are opposing it. It would bring in much revenue for the county. We want the wind turbine farm to get in Town of Ridgeville.
- Small groups of people farming to drive away business and job opportunities and building projects that our community is in need of
- Too many people
- Government wasteful spending
- Too much government
- Lack of acceptance to new business
- Possible financial issues
- Lack of funding for groups – such as youth through extension
- The economy is being a big factor in keeping people here, farmers are being hurt and likewise the industrial jobs. Need to learn how to work together.
- Monroe County jail
- Losing some of the rights on your land can be a problem – land use for ag land has been threatened
- Financing many things such as roads and bridges
- Farmland into housing
- Justice center
- Current Monroe County Board
- Overdevelopment
- Action and inactions by County Board and other government leadership
- Over population
- Justice center
- Crime and drugs
- Low incomes
- People moving in from other areas
- Too much government
- Mega Farms
- Sub-divisions
- High property taxes
- Fire protection

- First response and EMS Service
- The loss of prime ag land, sub-division- we want ag land, just not the large dairies. Economic development is good but not at the cost of losing ag land
- Development – it is close to La Crosse for commuting and is a place where people come to retire or have recreational property
- Development in areas that affect FMC
- Keeping economic development growth without sacrificing farm/forest recreation

3. What are potential POSITIVE TRENDS/OPPORTUNITIES/ASSETS for Monroe County?

- Monroe County is growing
- Option to live in La Crosse, West Salem
- Most rural areas want to stay rural
- We have good tourism opportunities without having the touristy feel
- Develop a plan to keep ag land as is
- Justice center is only part of cost
- Education
- Inter-governmental co-op (townships)
- Stay rural
- Maintain Co. forest
- Many flowages with public access
- Roads, biking, camping, some industry, education, National tractor pull, Cranfest, higher paying jobs
- Vibrant Fort McCoy for employment and economic opportunities
- Small town/rural atmosphere/attitude
- Better shopping, more jobs, Fort McCoy
- Medical care
- Living in the drift less area we have bluffs, valleys with stream, agriculture that includes many types from grain, dairy, beef, berries and many others. It is interesting to tourism
- Feel we have good hospitals, good medical care
- Strong future with Fort McCoy location – natural resources, wildlife
- Tourism
- Farmland
- Tourism had a big growth potential. Farming is and always will be a large part of the economy in the area and should be protected and encouraged.
- Good ag land
- Woodlands
- Land development ordinance
- Bringing more businesses and more jobs to have more money to spend in our area
- Alternative energy projects
- Wind turbines needed
- We need cell towers – do not get cell reception in Norwalk area
- Beautiful country
- Quite a bit of industry

- Friendly people
- Lower tax base
- Bicycle trails to snowmobile trails
- Location
- Strong economic base
- Fort McCoy
- Natural Beauty
- Friendly hard working people
- Rural yet proximity to La Crosse
- Most rural communities want to stay rural and are working towards that
- Interstate systems, biking, scenic, recreation, organic agriculture, wind energy, limestone, sterile sand
- The potential for economic growth, Ft. McCoy blessing and a cures (Ex) bring jobs, raises tax base but has a bad effect on schools
- Tourism
- Cranberries are a great asset to the economy of the county
- Fort McCoy – large employer
- Recreation Opportunities

4. What are some of your FAVORITE PLACES in Monroe County to take visitors?

- Farm country south of Tomah – southern part of county, Fort McCoy and Meadow Valley area
- Cranfest in Warren cranberry tours
- Eating places, ridge tops
- Amish areas of Cashton, cranberry areas
- Rural – not the 2 cities
- Kickapoo Valley, Cranberry bogs, just driving the roads
- To Ridgeville if turbines come
- Bicycle trails, canoe, bicycle museum, train museum, tractor pull, Tomah, Norwalk
- Valleys, rivers, streams, hills
- Down the Kickapoo river, on the Sparta-Elroy bike trail
- Cranberry marsh – beautiful hills and valleys
- Wild Cat Mountain State Park
- Scenic fall views, fishing, cranberry flowages
- To the ridge tops, eating places
- The bike trail, museum in Sparta
- We have many good places to dine. We and our neighbors enjoy our private trails and places to hunt and fish. We have tractor pulls, the fairs and cranfest as well as many local festivals
- Tractor pull, eating places
- Ginny's cupboard, Wegner Grotto
- Little Glass Church
- Bike trails, museum, Fort McCoy, VA Hospital
- Fishing, view fall colors
- McMullen Park

5. What's the best way to accommodate NEW HOUSING in Monroe County so that it doesn't detract from what you like about the county? Do you think it's better to cluster new housing together or have it scattered? Why?
- Cluster to that the rest can be preserved as "green space"
 - Clustered subdivisions near communities
 - Require 5 acres pr house; either 5 acre house lots or cluster housing with 5 acres green space par house, etc
 - Depends on the township, require larger building lots
 - Cluster if people will
 - I think it should depend on soil qualities. I don't like to see top soils covered with concrete
 - I think the new housing should be grouped together
 - The housing is taking over too much of the good farmland, need to focus on where people are allowed to build to take away from the good land but also not price farmland values so high that it is priced out of range for agricultural use
 - Try to keep housing in areas that don't use up valuable agricultural land. I still have mixed emotions about clustering
 - Build together to protect farmland
 - I think it's better to cluster new housing so we leave as much open spaces and farmland as possible
 - Development ordinance regulating sub-divisions
 - Cluster
 - Cluster new housing, we don't need any more cement and blacktop, we need the land too
 - Keep them smaller. Have them scattered. Why? Less congestion.
 - Have it scattered
 - Leave it scattered – people getting along with each other
 - Scattered
 - Cluster with sufficient green space included. If scattered, can open land be protected?
 - Scattered – crime increases with congestion
 - Planned housing units/subdivision
 - Cluster houses together
 - No comment
 - I would favor cluster housing versus a normal sub-division where each residence has 3-5 acres. I would favor cluster housing – something like all houses in a 10 acre area and open space (maybe 30 acres) around it where structures couldn't be placed. Nothing against one house going up in a piece of land.
6. Do you think Monroe County should work with interested land owners to permanently protect farms and working forests? Why or why not?
- Yes- I think the majority of residents in the county values these resources and would like to see them maintained far into the future
 - Right to farm
 - Yes

- Ag land and forest land needs to be protected from houses scattered throughout the county
- Shouldn't the county be interested in all of its citizens?
- Yes – maintain beauty of county
- Yes – to preserve the family farm and forest products
- Yes
- Yes – work with land owners, we pay our taxes
- Yes
- Continue current farm preservation program
- Yes – private farm have a difficult time competing with housing on price of land
- Yes, so that there are not a lot of houses all over
- Absolutely yes – keep in mind – land and forests have to be protected and cared for – no one is making more land – what we have is what we have
- Yes – because agriculture has always been the backbone of our country. We need to protect our farms and forests because we don't want to become urbanized
- Yes – farmers should have protection for their farm and forest lots
- Yes – I may have covered this in earlier questions
- Yes, to save ag land
- Yes! Our land needs to be protected for the future
- Yes! Economic and environmental reasons
- Yes – because ag business in the county has gone down, small farms are gone
- Maintain current farm preservation program
- Yes – if we don't do it now it will be too late and we will lose the rural qualities that attracted people in the first place

MAPPING EXERCISE SUMMARY

Transportation Issues (Red Dot)

- County Highways rapidly deteriorating
 - Valley Junction deterioration due to heavy vehicles on road and sand
 - On the municipal boundary between Town of Oakdale and Town of Byron
 - EW Road
 - Highway 12 in north of Monroe County
 - County Highway Z and U
- In Sheldon on 131 there are 3 bridges that should be re-done – the road crosses 1 stream 3 times
- Iderl Road south of Sparta - dangerous hill
- Garland Ave west of Sparta – dangerous intersection
- High volume of horse traffic in southern part of county on 33 between Ontario and Cashton
- Bad intersection/poor visibility of Amish in North Wilton near where 131 intersects A
- Bad intersection at Kerry Ave, Keets Ave and Highway U near Town of Ridgeville
- Need better visibility for the Amish near highway T just north of municipal boundary of Town of Ridgeville
- Make Keets into County Highway U between Ridgeville and Village of Wilton
- 27 and 33 intersection in Village of Cashton
- Interstate and 16 in Angelo
- Traffic congestion from school on County B, north of Sparta
- Speed/passing lane through Cataract
- Cut across from County Highway B to Highway 27
- Traffic volume from cutting through 27 to get from 90 to 94
- Safety concerns related to Amish and traffic along 21

New Public Areas (Blue Dot)

- Need public park on 33 between Ontario and Village of Cashton
- Need parks along bike trail between Village of Wilton and Village of Norwalk
- Need park on 27 just north of Village of Melvina
- Fair grounds/Rec. Park in City of Tomah near CM
- Overlook possibility where County Highway U intersects County Highway A – or where County Highway F intersects County Highway U near St. Mary's

Preservation Areas (Green Dot)

- 3 - Preserve St. Mary's Church
- 3- Preserve Wagner Grotto
- 3 – Preserve Sparta-Elroy bike trail
- 2 - Preserve Lutheran church near Intersection of County Highway A and U
- 2 - Preserve Ft. McCoy
- 2 – Preserve Mill Bluff State Park
- Preserve county land in the area near County Highway T (north of Village of Norwalk and south of town of Ridgeville)

- Preserve Tunnelson Bike Trail
- Preserve county land south of Town of Lincoln
- Preserve public areas in Town of Scott
- Preserve trout stream near Clifton and one near County Highway Z, south of County Highway P
- Preserve McMullen Park
- Preserve Little Red School House
- Preserve Tunnels between Village of Wilton and Village of Norwalk
- Maintain county lands (don't sell)- east of County Highway O, just south of Lincoln
- Maintain park in the northern part of the county near where 94 enters into Jackson County
- County and forest land in town of New Lyme and Town of Little Falls
- Scenic resource/potential views on A south of Town of Adrian
- Issue of cemeteries – townships will have to maintain in the future

Bicycle/Pedestrian Facilities and Safety Concerns (Orange Dot)

- W. Veterans St in Tomah- add bike and pedestrian lane
- Enforcement of the rules of the road in entire county
- At Javelyn on bike trail between Wells and Farmers Valley the highway and bike trail cross each other – blind corner
- Iband road on bike trail – dangerous
- Bike lane between Village of Wilton and Ontario
- Bike trail on 33
- Need bike lane on Highway 16

Additional Comments

- 700 acres of county land between County Highway T and the river in Town of Ridgeville that was bought to put in a flood control structure
- There is a land fill in E Ridgeville near Junkle Road
- Last segment of where County Highway U meets County Highway A is wrong, should go straight, no last diversion to the right
- Encourage wind farm development on the ridge in NE Town of Wells
- Encourage communication towers throughout the county
- White sand operations in Blue Wing Village and north of the Village of Oakdale

INDIVIDUAL TOP PRIORITY RESULTS

Priority #1

- 10- Preserve agricultural and forest land
- 5- Preservation of Scenic/Natural Beauty
- 4- Transportation – maintaining county roads
- 4- Preserve Rural Character (Agricultural Use)
- 3- Justice Center
- Preserve public land
- Preserve natural resources
- Combining 5 acres/house with current owner property rights
- Keep current county board members
- Keep up recreation
- Quality of life

Priority #2

- 4- Justice center controversy
- 3- Enhance Parks and Recreation
- 3- Tourism
- 2- Quality of life
- 2- Preserve forest land
- 2- Working with Fort McCoy and its economic vitality
- 2- Preserve agricultural land
- Safety
- Managing growth
- Preserve public land
- Property rights
- Preserve Rural Character
- Natural Resources
- Jobs
- Industry
- St. Mary's Ridge Church should be a historic site
- Preserve scenic beauty
- Transportation – maintaining roads
- Keep a hard approach on Amish communities towards building structures and roads

Priority #3

- 4- Parks and recreation
- 3- Wind farm development/promote wind energy
- 3- Natural Resources
- 2- Having townships, cities and county work together
- Preserve Fort McCoy
- Keep the public informed
- Keeping housing together
- Low crime rate
- Education

- Justice center controversy
- Wildlife
- Housing
- Lack of new business
- Absentee landowners
- Managing development
- Land owner rights
- Preserve Rural Character
- Quality of life
- Maintain agriculture
- Maintain infrastructure

Priority #4

- 4- Road Maintenance, Transportation (highways and bridges)
- 2- Preserve natural resources
- 2- Public Services
- 2- Preserving family/small farms
- 2- Protect air and water
- Use development ordinance
- Education facilities
- Support agriculture
- Rural Life
- Traffic patterns on Northern Sparta
- Small businesses
- Cell towers in Norwalk

Priority #5

- 2- Enhancing natural resources (Bike trails, walking trails, open space)
- 2- Parks and recreation
- 2- Improve maintenance of county roads, Continue highway improvement
- 2- Public services
- No big cities
- Land use
- Community atmosphere
- Have better safety rules for Amish community
- Industry
- Preserving scenic beauty
- Wildlife
- Wind turbines