

Waupaca County

Land and Water Resource Management Plan

April 2012



ACKNOWLEDGMENTS

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PREFACE

One of the major threats to natural resources of Waupaca County is nonpoint source pollution. In the past, a variety of state, federal, and local programs have been implemented to slow the progress of this environmental threat. Waupaca County participated in most of the programs, including two DNR Priority Watersheds, AG 166 Farmer's Fund, EQIP Projects, Erosion Control Plans and Nutrient Management Programs. In 1996 the legislature ordered a re-design of the state's nonpoint source programs. The re-design process resulted in the establishment of a locally driven, county-wide Land and Water Resource Management Plan.

Conservation professionals endorsed the locally developed concept, along with increased program delivery to help target funds, with emphasis on the protection of land and water resources. When Chapter 92.10 was amended in 1997, this concept was included. The Land and Water Resource Management Planning Program was created to:

- Establish a locally driven process for plan development and implementation
- Maximize flexibility in program fund use
- Encourage comprehensive watershed-based efforts without excessive planning
- Support innovation and cost effectiveness toward achieving plan objectives
- Promote "seamless" program integration and funding sources
- Establish a reliable means to measure the extent to which planned objectives are achieved

The authority to develop a County Land and Water Resource Management (LWRM) Plan is provided by Chapter 92.10 to counties through their Land and Water Conservation Committees. These plans help coordinate available programs and other resources to:

- Direct the resource management planning and decision-making processes
- Evaluate land and water resource conditions with pertinent information
- Identify land and water related resource problems and priorities
- Address land and water resource problems by developing a multi-year plan
- Strengthen partnerships with landowners, other agencies, municipalities and organizations
- Integrate efforts with other county and basin level Natural Resource Management Plans
- Coordinate with township and county comprehensive land use planning efforts
- Strengthen and maintain community support for the Land and Water Resource Management Plan goals and objectives by developing effective information and education strategies, and tracking progress toward the achievement of the plan's goals and objectives

PLAN SUMMARY

Introduction

This Waupaca County Land and Water Resource Management Plan (2012 – 2021) represents the third generation of state mandated conservation planning efforts. The first (1999-2005) was quite generic and was based on information gleaned from local DNR Priority Watershed Inventories. The second plan (2006-2011) was based on public participation in a comprehensive land use survey developed by UWEX, data accumulated through 7 years of transect surveys, input from a Conservation Advisory Committee as well as the long standing data from the Priority Watershed inventories. This third generation plan is more representative of an update or continuation of the last plan than an attempt to build a new one. Public participation is once again through a Conservation Advisory Committee (CAC). An emphasis will be placed on the use of geospatial data and Geographic Information Systems (GIS) not only in the addition of information to this version of the LWRM plan but also to carry out the tasks identified by this plan. Additionally, Waupaca County's Comprehensive Land Use Plan was completed in the fall of 2007, and will help guide the Waupaca County Land and Water Conservation Department (LWCD) with several issues such as public opinion and farmland preservation. LWCD efforts will continue to focus on nonpoint pollution, especially manure and agricultural runoff related issues as well as the resurgent interest in farmland preservation. The second generation plan made the promise to move into the compliance arena but never got there due to staffing limitations and the general philosophy of the department through that period of time. This new third generation plan is now left with the task of keeping that promise to enter into the realm of conservation compliance while balancing the CAC's wish to achieve compliance through voluntary means. This plan must also reach out to those areas of the county that have historically not had much contact with the LWCD.

The Department of Natural Resources (DNR), through Administrative Code NR 151 (October 2002 & December 2010), established agricultural and non-agricultural performance standards and prohibitions to reduce runoff and protect water quality. The Department of Agriculture, Trade, and Consumer Protection (DATCP) identified conservation practices that land users must follow to meet the DNR standards in ATCP 50. Specific standards for the development, content and approval requirements of LWRM plans were codified in ATCP 50. Those requirements have again been refined by DATCP as recently as February of 2012. Chapter 5 of this plan highlights the new DATCP format to define goals, objectives and actions needed to implement the Agricultural Performance Standards Strategy for Waupaca County.

Through development of this plan, Waupaca County is assured the opportunity to continue a locally driven conservation program. It provides flexibility to allocate staff and financial resources where they can have the greatest impact. Local citizens, government officials and state and federal agencies will work together to integrate natural resource management programs and funding sources.

Public Participation

For purposes of the plan, Waupaca County used two forms of citizen participation. The immediate and direct group participating in the process was the CAC with 26 members. The group met on April 4th, 2011 to list concerns and establish priorities in regard to resource management. The CAC recognized that the priority of the next LWRM plan is implementation of the Agricultural Performance Standards, so the focus of the meeting shifted to more of a strength, weakness, opportunity and threat (SWOT) analysis of how the department can better serve the county. The top three things identified by the committee that the LWCD should continue to do were:

1. Designing and implementing Best Management Practices (BMP's) to control erosion, improve surface water and groundwater quality and most importantly to address animal waste runoff issues.
2. Continue engineering support and technical assistance to landowners, the Natural Resource Conservation Service (NRCS), other county departments and municipalities within Waupaca County for both grant funded and non-grant funded environmental projects.
3. Continue to pursue the Working Lands Initiative, farmland preservation and conservation easements (through the Waupaca County Donated Easement Program).

The CAC also identified threats and weaknesses to the LWCD as well as identifying new endeavors for the LWCD.

The second form of public participation comes through use of 2007 Comprehensive Land Use Plan. The LWCD cooperated with UWEX in 2005 to develop and distribute a comprehensive survey on land use, agriculture and the environment. Results of the survey were used extensively for the Waupaca County Comprehensive Land Use Plan. Questionnaires were sent to 20,194 landowners, both urban and rural, that own 10 acres or more with improvements. More than 8,000 surveys were returned (40% response rate) resulting in a 95% confidence level with a ± 1 point margin of error. The following points summarize several highlights from each area of focus:

- Nearly all landowners (90% +) indicate that natural resources are important to them, including wildlife (90%) and especially water (97%)
- Nearly 75% agree that strategies should be adopted to prevent forest fragmentation and non point source run off from urban development
- Most landowners agree (80-85%) that protecting farmland, especially the most productive farmland, while maintaining agricultural resources/services is important
- Dairy/Livestock expansion is widely supported, areas with the most productive farmland and the least residential development were identified most often

Current Land Use Issues

Agriculture, recreation and manufacturing are the driving forces in the economy of Waupaca County. These three entities also shape the land use trends. Urban development in the riparian zone of both streams and lakes has increased disproportionately when compared to other areas. Waupaca County farmers account for 15% of jobs and 10% of rural residents live on farms. Over 75% of all farm revenues are from dairy and livestock agriculture. From 1992 to 2007 the number of dairy farms decreased from 555 to 257, but the number of cows only decreased by 13%. Row crop agriculture increased by 15% and total cropland decreased by 10%. The reduction in acreage of cropland is a positive trend because much of the cropland converted was environmental sensitive and is now grassland, woodland and wetlands. Waupaca County adopted the Year 2030 Comprehensive Land Use Plan in 2007. Thirty-three of thirty-four municipalities participated in the overall county planning process. Agricultural issues are a major component of the plan, including the Livestock Siting Rules. In April 2006, the Waupaca County UWEX Department organized and completed a tour of land use issues, especially farm preservation, on the east coast of the United States (Ultimate Land Use Tour). Thirty people involved with the Waupaca County Land Use Planning effort attended. Farmland protection tools that were observed were incorporated into the Comprehensive Plan.

Agricultural Performance Standards and Prohibitions

DNR Administrative Rule NR 151, Sub-Chapter II - Agricultural Performance Standards and Prohibitions, as revised in December 2010 is the foundation for the agricultural component of this plan. These rules are the basic premise under which this plan will be implemented with respect to eliminating agricultural runoff and reducing phosphorous and nitrogen to surface and groundwater. Administrative Rule ATCP 50 is the Department of Agriculture, Trade and Consumer Protection's companion rule that sets guidance to implement Wisconsin's Soil and Water Resource Management program specified in state statute 92.14. The LWCD will utilize NR 151, ATCP 50 as well as the Waupaca County Code of Ordinances Relating to Manure Storage and Land Spreading of Manure to enforce prohibition standards. A multi-agency approach will be used for the enforcement of manure standards. The goal is to resolve all noncompliance issues without the use of the enforcement procedure.

Priority Farm Strategy

Farms that would be considered "priority farms" are those that are found to be noncompliant with the Agricultural Performance Standards and Prohibitions. Noncompliance will be determined by onsite evaluations, records review and geospatial data. Additionally, priority farms will be addressed from citizen complaints and inter-agency cooperation. The Agricultural Performance Standards and Prohibitions will be used to evaluate all farms as they are inventoried. Priority farms will be identified in the following order:

1. Existing Farmland Preservation Contracts
2. Livestock Operations in the WQMA
3. All other Livestock Operations
4. New Farmland Preservation Participants

In 2014 the new Waupaca County Farmland Preservation plan is expected to be certified and in place. At that time priorities 2 and 3 above are expected to switch places as a large amount of farmland located in the newly identified Exclusive Agricultural Zoning areas will need to be inventoried for compliance.

Inventory Tracking and Progress Evaluation

Waupaca County uses the Agricultural Inventory software developed by Outagamie County along with a GIS database to track the status and monitoring of all inventoried farms. It is the intention of Waupaca County to maintain detailed farm inventory records that can be cross referenced by tax parcel. The Transect Survey will provide the basis for measuring long-term reductions in soil loss and increased use of conservation tillage.

Annual Review and Reports

The annual review will take place during the first month of each year. This review will be used to evaluate short-term, yearly progress. The LWCD will summarize financial data for funds appropriated in the implementation of the LWRM Plan.

Annual accomplishment and work plan reports will be submitted by April 15th each year to DATCP to fulfill the requirements of ATCP 50.18. This will include both the financial report and the annual accomplishment report of LWRM activities. Annual reports to the county board will also be made that will include information from the annual review. The county board report will also include analysis of cost share funds spent in the county versus staff money utilized.

Goals, Objectives and Actions

The goal, or more accurately mission, of the LWCD has always been to work with the citizens to improve the water quality and natural resources of Waupaca County. Specific goals, objectives and actions to achieve that mission have been mapped out in this plan in Chapter 5 in a format recommended by the DATCP Land and Water Conservation Board. The LWCD believes this is a very accurate depiction of the actions needed to implement this plan. A summary of those goals can be found in the table below along with the projected staff and cost share budget. Establishing staffing hour estimates and budgets for long term plans are both difficult and dangerous. A number of factors outside the LWCD's control make staffing and budget projections somewhat speculative. Ideally the annual staffing hours projection would reflect the existing LWCD staff in 2012. However due to recent staffing cuts the Waupaca County Land and Water Conservation Department finds itself stretched to the limit to achieve its

current workload. Re-certification of the Waupaca County Farmland Preservation Plan is projected to increase the workload of the LWCD due to the increased interest in the preservation of prime farmland in this county. Furthermore, although most compliance issues require cost share availability, farm income is still at the mercy of the markets. Landowners best intentions to install timely or possibly mandatory conservation practices may sometimes be delayed due to low market prices. When dairy and/or livestock prices are high, producers have both the financial ability and interest in conservation, but the opposite is true when prices are low. The result of this financial reality is that at times it produces a roller coaster affect in the workload of the LWCD. The “Cost Share Funds Needed” to meet goals is the best estimate, *over the long term*, of the amount of money that could be distributed to landowners to secure compliance with state law.

Summary of Staff Hours & Cost-Share Funds Needed To Implement 2012-2021 LWRM Plan

Goal	Annual Staff Time & Cost	Annual Cost-Share Funds Needed	Total Funds/Goal
A.- Implementation of Performance standards	4460 Hours \$156,100	\$575,000	\$731,100
B.- Implementation of Stormwater Management Standards	130 Hours \$4,550	Included in Goal A or from County Grant fund	\$4,550
C.- Farmland Preservation Compliance	2420 Hours \$84,700	Included in Goal A	\$84,700
D.- Groundwater & Karst Concerns	40 Hours \$1,400	\$2,000	\$3,400
E.- Permit and Ordinance Administration	1150 Hours \$40,250	Included in Goal A	\$40,250
F.- Lake and Stream Protection	280 Hours \$9,800	Included in Goal A	\$9,800
G.- Watershed Protection	16 Hours \$560	N/A	\$560
H.- Program Evaluation and Monitoring	155 Hours \$5,425	N/A	\$5,425
I.- Spending / Acquisition of State Cost-Share Funds	430 Hours \$15,050	N/A	\$15,050
J.- Forestry Management	370 Hours \$12,950	\$5,000	\$17,950
K.- Information and Education Strategy	\$9,800 280 Hours \$4,000 Budget	N/A	\$13,800
Totals	9731 Hours \$340,585	\$582,000	\$926,485

LWRM Plan Implementation Budget

The following information is based on the projected budget information available in 2012 to maintain the current 5 FTE. The projected average staff salary for the Waupaca County LWCD, with benefits, for 2012 is about \$35/Hour. The table below assumes a 3% annual increase in salary and benefits package. It should also be noted that Waupaca County LWCD records indicate that when training, sick leave and vacation are subtracted from a 2080 hour per year employee there is about 1760 effective working hours, per year, for our current employees. Based on the estimated total hours from the previous page the LWCD staff is currently 0.5 FTE short of the staff needed to implement the goals and objectives of this plan. Current funding trends may exacerbate this situation.

The following table is the best estimate of the budget needed to accomplish the goals of this plan assuming 5 FTE. Waupaca County will continue to utilize all available federal, state, county and private funds to accomplish the stated goals. Based on recent previous BMP funding it is within reason to assume Waupaca County LWCD staff can utilize approximately \$582,000 per year to implement various hard and soft practices. This is based on recent averages of two TRM grants annually totaling \$300,000, EQIP funding of \$200,000 and \$62,000 of annual SWRM Grant Cost-Share funds. It is important to note that without the proposed estimates of staffing and BMP grant dollars, this plan will not be fully implemented in a timely manner.

	2012	2013	2014	2015	2016	Totals
Staff Costs	\$364,000	\$375,000	\$386,000	\$398,000	\$410,000	\$1,933,000
BMP Funding	\$582,000	\$582,000	\$582,000	\$582,000	\$582,000	\$2,910,000
Totals	\$946,000	\$957,000	\$968,000	\$980,000	\$992,000	

	2017	2018	2019	2020	2021	Totals
Staff Costs	\$422,000	\$435,000	\$448,000	\$461,000	\$475,000	\$2,241,000
BMP Funding	\$582,000	\$582,000	\$582,000	\$582,000	\$582,000	\$2,910,000
Totals	\$1,004,000	\$1,017,000	\$1,030,000	\$1,042,000	\$1,056,000	

CHAPTER 1 – PLAN DEVELOPMENT

Plan Development Process

In 1998, legislation was passed requiring counties to develop a Land and Water Resource Management Plan to guide the efforts of Land and Water Conservation Departments to preserve and protect water resources. The first generation of this plan for Waupaca County was approved by DATCP in January 1999. That plan used figures extrapolated from DNR Priority Watershed inventories conducted in 1994 and 1996. The 2006 plan utilized information collected in a countywide survey conducted in part for the Waupaca County comprehensive planning effort and, more importantly, “Transect Survey” information collected each year from 1999 to 2005. The Transect Survey data was utilized to determine soil loss, by watershed, for both priority determination and actual sediment delivery. The soil loss and sediment delivery data in Chapter 3 is information from the Transect Survey. The LWCD has great confidence in the Transect Survey data. Transect surveys continued from 2006 until 2010. A wide variety of agencies, citizens and committee members helped complete this plan. In accordance with state statute ATCP 50.23 (a) a public hearing was held on March 19th, 2012 for approval of the LWRM Plan.

Citizen Participation

For purposes of this plan, the Waupaca County LWCD formed a Conservation Advisory Committee (CAC) to establish and develop priorities for the 2012 Land and Water Conservation Plan and subsequently was given the opportunity to comment on the draft plan.

The CAC is composed of members of a variety of other committees and organizations along with interested citizens and farmers that have been involved in natural resource issues in the past. Specifically:

- Six are members of the Waupaca County Land and Water Conservation Committee
- Four are DNR managers of forestry, water, wildlife or regulations specialists.
- Two represent University of Wisconsin Extension
- Two represent USDA-Farm Service Agency
- Two are employed by USDA-Natural Resource Conservation Service
- Seven are agricultural producers and business owners
- One is Past President of the local Farm Bureau
- Two represent town government
- Two represent city government
- Two represent other county departments
- One is a forestry producer.

Obviously, most members wear several hats, which is indicative of the variety of experience they have in public service and the conservation arena.

The CAC believed the following are relevant items and should be included from the 2006 countywide citizen survey that was done as part of the planning effort of the Waupaca County Comprehensive Land Use Plan.

- Nearly all landowners (90%) indicate natural resources are important, including wildlife (91%) and water resources (97%)
- Nearly 75% agree strategies should be adopted to prevent forest fragmentation and run-off from development
- Most landowners (80-85%) agree protecting farmland, especially the most productive farmland, and maintaining agriculture resources and services are important
- Over 75% of landowners agree (only 9% disagree) that land use strategies should balance residential growth with farmland preservation
- Dairy and livestock expansion is widely supported. Areas with the most productive farmland and the least residential development were identified most often
- Landowners are divided on whether farms should be allowed to expand near existing homes. More agree new homes should not be allowed near existing farms

The CAC met on April 4th, 2011. LWCD staff provided background information on the process of re-writing the Waupaca County Land and Water Management Plan. Committee Members had been given copies of the 2006 LWRM plan in preparation for this meeting. The UWEX Community Educator facilitated the meeting by asking the CAC to answer three predetermined multipart questions. Each CAC member was given several chances to answer. The answers were then grouped by similar theme and put up on the wall around the meeting room. CAC members were then given five adhesive stickers to apply in a weighted manner to each grouped answer thus establishing the priorities of the group. The following are those three questions and the top answers for each as determined by the CAC. The answers have been edited into proper sentence form.

Question #1

In the next five years, what are the strengths of the current work of the Land and Water Conservation Department, what programs and strategies should the LWCD continue to implement and what priority issues does the LWCD currently address that they should continue to address?

1. Designing and implementing Best Management Practices (BMP's) to control erosion, improve surface water and groundwater quality and most importantly to address animal waste runoff issues.
2. Continue engineering support and technical assistance to NRCS, other county departments and municipalities within Waupaca County for both grant funded

and non-grant funded environmental projects.

3. Continue to pursue the Working Lands Initiative, farmland preservation and conservation easements through the Waupaca County Donated Easement Program.
4. Continue and further pursue 590 Nutrient Management Plan review and neighborhood communication regarding manure spreading.
5. Informing and educating landowners, farmers and school children about natural resource issues.
6. Inventory livestock within the Water Quality Management Area and work with the Zoning Department to implement livestock siting.
7. Continue to encourage voluntary implementation, of state runoff rules, by building and fostering relationships with local farm producers.

Question #2

What are the current weaknesses or threats to the LWCD that should be addressed in the next 5 years?

1. Lack of adequate staff to carry out the departments work. Specifically a lack of staff diversity such as an agronomist, GIS specialist and an education specialist.
2. Better public relations are needed to the non-agricultural community. More information and education to the agricultural and non agricultural communities.
3. Lack of funding and uncertainty of future funding sources for both staffing needs and cost share program needs.
4. Invasive species issues.
5. Weak inventory phase of the 2006 LWRM Plan. Lack of identification of highest priority resource needs.
6. Limited cooperation between Zoning and LWCD in non-agricultural situations like shore land zoning and erosion control issues.

Question #3

What is the LWCD not doing or not addressing that should be addressed in the next 5 years?

1. Education of children, riparian owners and the general public on conservation issues.

2. Working with shore land property owners on invasive species issues.
3. Surface and groundwater withdrawal issues, irrigation and municipal water consumption. Surface and groundwater monitoring.
4. Wetland protection.
5. Fertilizer use on farms, golf courses and lawns.
6. Encourage and coordinate the use of volunteers.

The committee recognized that while several new issues have arisen many of the 2011 issues were identified in the 2006 LWRM plan as well. The CAC, while recognizing the current difficult financial times, recommended that the LWCD pursue and encourage additional funding for both staff and landowner programs at every available opportunity. The CAC also recommended that the Land and Water Conservation Department continue to provide every opportunity within the law for landowners to voluntarily comply with state, federal and local ordinances. If enforcement becomes necessary, the committee recommended that Waupaca County enforce county ordinances, and turn state law enforcement issues over to DNR and DATCP. The committee clearly sees a conflict in the mission of the LWCD between assisting landowners with voluntary nonpoint source runoff issues and having to engage in enforcement action against those same landowners.

The CAC reviewed the complete results of the meeting and agreed that the most heavily weighted issues and concerns should be incorporated into the 2012 LWRM plan.

Related Resource Management Plans

The following plans were especially instrumental in development of this plan:

- Waupaca County Farmland Preservation Plan (1981)
- Waupaca County Animal Waste Management Plan (1985)
- Waupaca County Erosion Control Plan (1988)
- Winnebago Comprehensive Management Plan (1989)
- Tomorrow/Waupaca Priority Watershed Plan (1995)
- Lower Little Wolf Priority Watershed Plan (1997)
- Wolf River Basin Water Quality Management Plan (1996)
- USDA-EQIP Lower Little Wolf Priority Area Plan (1997)
- Waupaca County Land and Water Resource Management Plan (1999)
- Waupaca County Land and Water Resource Management Plan (2006)
- Waupaca County Comprehensive Management Plan (2007)

It is important to recognize that these documents were developed with a great deal of

public participation. Many of the concerns, ideas, and recommendations identified by those citizens are incorporated in this document.

Interagency Participation

Cooperating agency participation played a critical role in the development of the Waupaca County Land and Water Resource Management Plan. The “conservation team” in Waupaca County has an excellent track record of working together. The following agencies provided review and/or information for the plan:

- United States Department of Agriculture-Natural Resource Conservation Service (USDA-NRCS)
- University of Wisconsin Extension (UWEX)
- Wisconsin Department of Natural Resources (WDNR)
- United States Department of Agriculture-Farm Services Agency (USDA-FSA)

General Conclusion

The CAC has once again listed water quality and animal waste runoff issues as the top priority along with farmland protection. Animal waste itself is not actually the problem but rather continued improper application, inadequate storage and runoff issues that contribute to surface and groundwater pollution. Excess phosphorus runoff to surface waters and excess nitrogen leaching to groundwater causes nuisance aquatic plant growth and nitrate polluted groundwater respectively. The CAC also recognized, in this plan revision, that inadequate staffing/funding issues and public information and education issues are the primary threats to the full implementation of the Waupaca County Land and Water Management Plan. The committee utilized all the information presented along with their personal experience to list and prioritize the above issues. The “Property Owner Survey on Land Use, Agriculture and the Environment”, from 2006, solidly indicates that Waupaca County residents overwhelmingly support the protection of natural resources while encouraging a strong agricultural industry.

In an effort to take the implementation of the 2012 Waupaca County Land and Water Management Plan to a more effective level, the LWCD has already started to pursue and remedy some of the foremost concerns of the CAC and the department with respect to staff. In July of 2011 the LWCD hired a GIS specialist to help diversify our staff and strengthen our inventory and mapping capability. Furthermore, in September of 2011, we entered into a staffing agreement with a neighboring county to contract their agronomist for 2012. This is another attempt to diversify our staff capability and address Nutrient Management issues while having minimal impact to the departmental budget. Additionally in 2011 the Waupaca County LWCD entered into a grant contract with Golden Sands RC&D to provide Aquatic Invasive Species (AIS) inventory and assistance to the lake owners and lake associations within Waupaca County.

CHAPTER 2 - CHARACTERISTICS, NATURAL RESOURCES AND TRENDS

General Characteristics

Waupaca County is located in East Central Wisconsin with a total area of 761 square miles or 487,040 acres, of which 8,972 is water. Lakes account for 7,240 acres and rivers/streams 1,732 acres. Waupaca is a rural county with a 1990 population of 46,242 increasing to 51,731 in 2000 and becoming more stable at 52,410 in 2010. The county has 22 civil townships that are predominantly rural /agricultural in nature. The city of Waupaca is the county seat. Dairy farming is the main agricultural enterprise on the glacial till soils of the eastern half of the county. Cash cropping and irrigated vegetable production are more prevalent in the outwash plain of the western half.

History

Waupaca County was established by legislative act on February 17, 1851. Prior to the white man settling this area, it was occupied by the Menominee Indian Tribe. Two popular ideas for the origin of the name Waupaca are from Chief Wa-puka, which means, "watching", and from the Indian words "Waubuck Seba", which means "pale or clear water."

Waupaca County was located on the southern boundary of the great northern pine forests so the lumber industry grew quite rapidly. Because the county is located in the "tension zone" between the northern forests and the southern oak savanna and prairies, biological diversity is tremendous. The big timber was eliminated quite rapidly. The first sawmill was established in 1848, and the first furrow turned for agricultural purposes in 1849. Agriculture became important to the early economy, with the best farms located in the natural oak forest openings. Dairy cattle began to dominate the agricultural activities; however, during the late 1800's the Waupaca County Potato was known for its exceptional quality in the Chicago market.

Dams were placed on all the major streams as a source to power sawmills for lumber and later gristmills for livestock feed. The impoundments created by dams manifest the negative land use practices in the watersheds above. Sediment and nutrients delivered to the upstream areas are deposited in the impoundments when the water velocity is reduced.

Natural Resources

The natural resources of Waupaca County have had significant influence on the prosperity of the county. An abundance of high quality water resources, both surface and groundwater attracts visitors and people seeking to relocate to Waupaca County. The recreation industry totals over 90 million dollars each year. There is a healthy balance of agriculture, industry, commerce and recreation coupled with a progressive

attitude in protecting the county's history, natural resources and quality of life. Protecting these precious natural resources is the key to maintaining the quality of life that sustains the county's desirability.

Topography

Waupaca County contains two major topographic regions: the moraine-outwash region in the western half and the glacial lake region in the eastern half.

The moraine-outwash region in the western half of the county is characterized by hills and broad valleys formed by ice movement and stagnation from the Cary stage of the Wisconsin Glacier. The surface of this part of the county is irregular, containing many drumlins and kettles. Many of the smaller lakes were formed when kettles filled with water. Most of the county's streams originate from springs and lakes in this region. Much of this part of the county is rolling, forested hills. Nearly all of the County's trout streams and clear lakes are in this area.

To the east of the Cary end and recessional moraines, the terrain is dominated by deposits laid down by the Valdres and Mankato Glaciers. This region has a gently rolling terrain containing numerous marshes, wetlands and scattered lakes. The water bodies in the eastern part of the county tend to be shallow and more fertile than waters in the western portion of the county.

The southeastern corner of Waupaca lies within a glacial lake area of a flat marshy plain broken by drumlins and eskers. The Wolf River flows between New London and Fremont. Its bottomlands are characterized by extensive wetlands and a few large shallow lakes or bayous formed by former river channels. The three largest water bodies in the county, White Lake, Partridge Lake, and Partridge Crop Lake, are located in the former glacial lake area. Partridge Lake and Partridge Crop Lake are bayous of the Wolf River. Many of the rivers and streams in the eastern part of the county tend to be stained brown or light brown.

Surface Water Resources

The county is entirely within the Wolf River basin or watershed. There is 7,240 acres of surface water in lakes along with 1,732 acres of rivers and streams. There are approximately 74 named rivers and streams along with numerous small unnamed and intermittent tributaries. The total length of named rivers and streams is 337 miles. The largest river is the Wolf, which accounts for 41% of the river and stream surface area. There are 275 lakes in the county, of which 145 are named. Sandy soils found in western Waupaca County readily allow water from precipitation to percolate to groundwater rather than runoff to lakes and streams. This condition leads to continual recharge of groundwater supplies and accounts for both stable and high quality water in streams in the western half of the county. All of the trout streams are located in this region. In the eastern part of the county the opposite is true. Heavy soils are not conducive to infiltration and percolation. Stream flows more readily reflect seasonal

runoff rates. As a result, there are fewer permanent streams and more dry runs and intermittent tributary streams. Higher runoff rates also result in more sediment and nutrient delivery to surface waters in this region.

Ground Water Resources

In Waupaca County, lake levels and base stream flows are directly related to local ground water supplies. In the western portion of the county, most of the ground water supply is found close to the surface as a result of a shallow mantle of bedrock. This region contains many spring seeps. Depending on the rate of discharge and topography of the immediate area, the ground water may discharge into a stream or accumulate in ponds or marshes. Ground water seepage is largely responsible for the abundance of trout streams found in this part of the county.

Land to the east and especially along the west bank of the Wolf River contains many artesian wells. While not contributing significantly to the volume of surface water lakes and streams, these springs are valuable in maintaining the large number of marshes and wetlands present in this area.

Ground water in the eastern portion of the county is generally deeper and less available. A larger percentage of the precipitation runs off so the ground water recharge is much slower.

All of the ground water in the county is from local precipitation that infiltrates through the soil to recharge the aquifers. Contamination risks from land use practices are the greatest threat to ground water resources. Potential point source contamination originates from old unregulated landfills, underground fuel storage tanks, private septic systems, livestock manure handling and storage, septic disposal and excessive agricultural fertilization. These risks are again most prevalent in the western portion of the county where infiltration is greatest. Vegetable crops are grown on approximately 5% of the cropland in this region. Vegetable crops require large amounts of fertilizer and irrigation water, which results in the potential for ground water contamination.

Wetland Resources

Approximately 124,473 acres of wetland exist in Waupaca County. There has been an estimated net loss of approximately 25% of the original wetlands since man began manipulating the land for agricultural purposes. Wetlands are located throughout the county. All indigenous wetland types are represented in Waupaca County. Each of these represents a unique ecosystem based on hydrologic conditions, vegetation, and location in relationship to other wetlands, drier upland areas, or adjacent water bodies. In addition to providing habitat for fish, waterfowl, and other wildlife species, wetlands are important for the recharge of aquifers and the protection of ground water quality. They are extremely efficient at trapping and filtering out nutrients and sediments contained in runoff and provide highly effective flood storage areas. All natural resource programs administered by Waupaca County will protect wetlands from further destruction. The protection of wetlands adjacent to lakes and rivers are particularly

important for protecting water quality. Every effort will be made to protect these areas.

Woodland Resources

Prior to settlement, forests covered all of Waupaca County. Approximately 170,000 acres remain in commercial forest. Most of this acreage is privately owned. The most important commercial forest area is located in the northwest townships. The dominant tree species are northern red oak, aspen, and birch, with sugar maple, white ash, and other common hardwoods. Pine plantations are prevalent in the sandy soils of the outwash plain areas of western Waupaca County.

The forest industry has a tremendous impact on the economy and other related natural resources. The woodlands are also very important in terms of wildlife habitat. Forestry practices can have a dramatic effect on water quality especially in close proximity to water bodies. Waupaca County's Shoreland Zoning Ordinance requires that best management practices for water quality be implemented near shore areas of streams and lakes.

Mineral Resources

The glacial history of the county is reflected in its mineral resources. The outwash area of western Waupaca is for the most part underlain by sand and gravel. A number of large nonmetallic mines (sand and gravel pits) are located in this region. The southeastern portion of the county has a topography that was determined by the underlying dolomite. There is an escarpment of exposed dolomite along nearly all the western edge of this area. Several large pits, supplying specific rock and crushed rock materials are located in this region. There are 45 permitted and 10 exempt NR135 nonmetallic mines on 474 acres throughout the county.

Soils

Soil is formed by the interaction of outside processes on deposited geologic materials. The characteristics of a soil are determined by the physical and mineralogical composition of the parent material, the climate in the area, the plant and animal life in and on the soil, the relief, and the length of time the processes of soil development have acted on the soil material.

The parent material in Waupaca County consists of windblown sand, water-laid deposits, organic material, and glacial drift. Glacial drift can be further divided into till and outwash. Till is unsorted glacial debris composed of clay, silt, sand, gravel and boulders. The eastern half of the county is either glacial till or water-laid deposits in former glacial lakes. The western portion of the county was formed by the melt waters of the receding ice masses depositing sand and gravel in the form of stream terraces, eskers, kames, and outwash plains.

There are 61 different soil types found throughout Waupaca County. These are

grouped into six major soil associations that have distinctive soil patterns, relief, and drainage features. The Waupaca County Soil Survey contains detailed descriptions of each soil type, including information on suitability and limitations for various types of land use and land management. The Waupaca County Land and Water Conservation Department extensively uses soil information (Appendix A) and related data in determining cropland erosion estimates and sediment load calculations.

Land Use Trends

Agriculture, recreation and manufacturing are the driving forces in the economy of Waupaca County. These three entities also shape the land use trends. Agriculture remains steadfast as the predominant land use in the county. Emphasis within the agricultural industry has changed as noted in the next section, "Agricultural Trends". Recreation and urban development are expected to put unrelenting and growing pressure on the county's natural resource base. Urban development in the riparian zone of both streams and lakes has increased disproportionately when compared to other areas. Development in the near shore zone of public waterways results in increased impairment of natural resources due to the impacts associated with construction site erosion, increased volume of runoff, and polluted runoff.

Waupaca County completed its comprehensive land use plan in 2007. The plan was developed on a countywide basis with 33 of 34 municipalities collaborating. Land use plans are designed to help control the type and direction of growth. Waupaca County resource managers will continue to develop and attempt to implement land use plans. Planning efforts will address the following resource management issues:

- Preservation of farmland
- Open spaces
- Wetlands
- Wooded areas
- Green belts between ecosystems

Agricultural Trends

Waupaca is a rural county with more than two-thirds (32,000) of the total population living in the country or in communities of less than 2,500 residents. Approximately 3,400 (10%) of these rural residents live on farms. Agriculture accounts for nearly 15% of all jobs in the county. Waupaca County farmers generate over \$136 million dollars of income each year, with dairy and livestock accounting for 75% of all farm revenue.

The face of agriculture in Waupaca County is changing. According to the USDA-NASS agricultural statistics, the following changes have impacted Waupaca County agriculture in the past 5 years:

- There are 83 fewer dairy farms (-25%) today compared to 2002 (340 to 257)
- Dairy cattle numbers, however, only decreased by 2.5% in the same time period

- The average farm size has remained stable at 176 acres (177 in 2002)
- The acreage devoted to row crops (corn and soybeans) has increased approximately 15%;
- Acreage devoted to hay crops has decreased by 10%;
- Total cropland has decreased 10% since 1992.

Economic, political and social factors will exert a greater influence on farmland in the future. It is expected that the number of farms in the county will continue to decline, while the size of the remaining farms will increase. Cattle numbers may decline; however, they will be more concentrated.

A combination of an increasing rural nonfarm population, larger concentrations of livestock, and increasing awareness of natural resource concerns pose a serious challenge to all stakeholders. Land use planning that addresses agricultural stability and diversifying farm operations, while protecting natural resources, must be adopted in the near future. The Comprehensive Plan has addressed several of these issues.

The 10% decrease in cropland during the past 10 years is a positive trend. In many cases this acreage is environmentally sensitive land that is being converted to grassland, woodland, and wetlands. A variety of federal, state, county, and private programs provide monetary and technical assistance to landowners desiring to retire cropland from production.

*From WDATCP USDA-NASS 1992, 1997, 2002, 2007 Ag Census

CHAPTER 3 - NONPOINT SOURCE POLLUTANT LOADING AND RESOURCE CONDITIONS

POLLUTANT LOADING

Sediments (soil) contained in runoff from rural/agricultural land use and nutrients entering both surface and groundwater are the most significant forms of nonpoint pollution impacting water resources in Waupaca County and the Wolf Basin in general. These pollutants degrade drinking water quality and impair recreational and biological uses of surface water. The principal rural nonpoint sources of pollution in Waupaca County are:

- Polluted runoff from barnyards, livestock feeding areas and pasturing areas
- Polluted runoff from land that was spread with manure
- Sediment delivery from cropland and construction sites
- Sediment eroded from shorelines, streambanks and drainage ditches
- Excess nutrients and pesticides infiltrating groundwater

Soil Loss, Sediment Delivery and “T”

“T” Value - “T”, or Tolerable Soil Loss, is an estimate of the amount of soil that can be lost from an acre of cropped land on a continual basis and still retain an adequate level of soil productivity. This value is strictly based on soil type. Soil values and T values are updated by NRCS.

Soil Loss - This is the estimated amount of soil that is moving from one place to another on the landscape. This can be calculated utilizing several equations. Waupaca County will use the Revised Universal Soil Loss Equation 2 (RUSLE 2). It provides a value that can be compared to “T”.

Sediment Delivery - This is the estimated amount of soil (sediment) that is actually being delivered to surface water, therefore it is the most relevant in terms of water quality. Sediment delivery will be referred to numerous times throughout this document.

Estimated Sediment Delivery to Surface Water

Intensive agricultural practices have caused considerable amounts of eroded soil (sediment) to reach rivers, lakes, streams and wetlands in Waupaca County. Cropland erosion (sheet, rill and gully) is the primary source of sediments reaching waterways. Two watersheds have had complete inventories of sediment delivery for DNR Priority Watershed status. The Waupaca/Tomorrow, which is on the west side of the county (outwash plain), is predominantly sandy soils; and the Lower Little Wolf in the east central portion of the county (glaciated) is mostly glacial till soils. These two inventories typify the two types of watersheds in the county. They will provide the basis for sediment delivery estimates for each of the watersheds. The inventories indicate that sediment delivery in the loam based glaciated soils in the eastern half of the county is about 33% while the western half of the county with sandy outwash plain type soils delivered about 6 % of the total soil loss to surface waters. It is estimated that 48,800

tons of sediment per year are deposited in surface waters of Waupaca County from cropland erosion alone.

Sediment Delivery Streambank/Lakeshore Erosion

To determine streambank sediment delivery, the numbers generated for the 1999 and 2006 Land and Water Resource Management Plan will be used. That estimate was 8,499 tons of erosion per year. There is no estimate for erosion on lake banks. The estimate for streambank erosion represents 14.8% of the total sedimentation for the county. This can be a critical part of the sedimentation equation because all of the soil that is lost on a streambank is deposited in the waterway. Stream bank/lakeshore erosion is considered a significant threat to the surface waters of Waupaca County. Since 2002, due to DNR permitting issues Waupaca County LWCD generally only engages in construction of shore land erosion control on rivers if significant property loss is at stake.

Sediment Delivery, Construction Site Erosion

The LWCD has no accurate estimates for construction site erosion. Erosion rates can be very high on steep sites. The State, through NR 151 and 216, regulates any construction site that is excavating more than one acre. At this time there is no staff available in either the Land and Water or Zoning offices to take on additional duties. Waupaca County has some of the most restrictive shoreland zoning in the state. The Zoning office enforces the shore land protection ordinance on all riparian properties. One FTE in the Zoning Department is assigned to the shore land protection.

Cropland Soil Loss/T-by-2000

The LWCD has conducted a Transect Survey each year from 1999 through 2010. The reports generated by this data are the basis for soil erosion estimates for this plan. Waupaca County is of the opinion that Transect Survey data is the most accurate and pertinent information, especially over time, for determining crop rotation, soil loss and tillage techniques.

Phosphorus Loading

Nutrient loading can adversely affect water quality by promoting excessive plant growth (macrophytes and algae) primarily in rivers and lakes. Phosphorus is the most significant nutrient that promotes macrophyte and algae growth. Excessive macrophyte growth causes severe oxygen fluctuation in streams and lakes. Plants produce oxygen as they photosynthesize in the daylight, but at night this oxygen is used for plant respiration. Large swings in the daily level of dissolved oxygen can stress fish and other aquatic life. Also, excessive plant growth in streams can restrict water flow and increase sedimentation rates. This problem is especially evident in the 9 impoundments in the county. The watershed size for impoundments (millponds) is generally more than 10 times the size of the watersheds for natural lakes. This indicates that phosphorus

and sediment delivery to these lakes can be ten-fold also. As a general rule one pound of phosphorus can produce about 500 pounds of plant matter in the form of aquatic plants or algae. Taking that one step further, more than 20,000 tons of nuisance aquatic plants are produced in Waupaca County lakes and streams from runoff and soil erosion each year.

Phosphorus Loading from Cropland Sediment

Phosphorus can reach surface water by running off the land as soluble P, or as phosphorus attached to soil particles. Recent research indicates that in central Wisconsin a ton of eroded topsoil contains about 1.5 pounds of phosphorus. The sediment delivery estimate for Waupaca County is 48,800 tons per year. Phosphorus delivery to surface water then would be about 73,200 pounds per year.

Phosphorus Loading from Feedlots and Manure Spreading

Feedlot inventories for two Priority Watersheds were completed in the mid 1990's. Since then, many of the identified feedlot runoff problems were addressed through various programs. The best available data on this issue is considered unreliable at best. One of the goals of this plan is to inventory all of the livestock operations in the Water Quality Management Area. The BARNY model had been used in all data collection in the past to determine pollution potential from each feedlot. The BERT model (NRCS) is now replacing BARNY to gauge phosphorous delivery. Phosphorus runoff from spread manure cannot be determined due to the many variables involved. Recent manure runoff problems statewide seem to indicate that the major problem occurs when liquid manure is spread on frozen ground.

Phosphorus Delivery from Streambank/Lakeshore Erosion

The LWCD assumes that 1.5 pounds of phosphorus is in each ton of soil from stream and lake bank erosion. Using that factor, 8,499 tons of annual streambank erosion results in about 12,750 pounds of phosphorus delivered to surface water and the potential for 3,200 tons of aquatic plants.

Nitrates in Groundwater

Groundwater is susceptible to contamination from any soluble material applied to the land. Nutrients, especially nitrogen, pesticides and chlorides are most commonly found in groundwater. UWEX in Waupaca County has conducted extensive groundwater education programs (Water Wise). Extensive well water testing programs indicate that about 8% of private wells in the county contain nitrates in concentrations above the State Health Standard. Nutrient management and proper installation of manure storage facilities affect groundwater quality positively.

EXISTING RESOURCE CONDITIONS

Waupaca County has a total of 13 streams and lakes listed as Outstanding Resource Waters (ORW's). That is up 3 water bodies from the 2006 LWRM plan despite portions of the Waupaca River being downgraded to Exceptional Resource Waters (ERW) status. Waupaca has 22 streams on the ERW list, up 5 water bodies from 2006. Three water bodies including Engebretson Creek, North Branch Pigeon River and Shaw Creek have been delisted since 2006. Three watersheds drain to 303(d) waters with nonpoint impacts. One of those, Bear Creek, is slated for TMDL Development.

303(d) Waters List

WATER BODY

Bear Creek
Columbia Lake
Wolf River, Main Stem

IMPAIRMENT

Degraded Habitat
Mercury (Contaminated Fish)
PCB's (Contaminated Fish)

Outstanding Resource Waters List

Outstanding Resource Waters (ORW) include waters with unique characteristics and largely unaffected by cultural activities. They do not presently receive wastewater discharges, nor will point source discharge be allowed to these waters in the future, unless discharge is so controlled it is of the same or better quality than the receiving water. This classification includes national and state wild and scenic rivers and the highest quality Class I trout streams.

STREAM

Griffin Creek
Leer Creek
Sannes Creek
Trout Creek
Peterson Creek
Spalding Creek
Jackson Creek
Emmons Creek
Radley Creek
Whitcomb Creek
North Branch Little Wolf River
Graham Lake
North Lake

(ORW) WATERSHED

South Branch Little Wolf
South Branch Little Wolf
South Branch Little Wolf
South Branch Little Wolf
South Branch Little Wolf
Upper Little Wolf
Upper Little Wolf
Waupaca
Waupaca
Lower Little Wolf
South Branch Little Wolf
South Branch Little Wolf
South Branch Little Wolf

Exceptional Resource Waters List

Exceptional Resources Waters (ERW) have excellent quality and valued fisheries, but already receive wastewater discharges or may receive future discharges necessary to correct environmental or public health problems. This classification includes all Class I trout streams which are not outstanding resource waters or other water bodies with significant resource values and high water quality.

STREAM

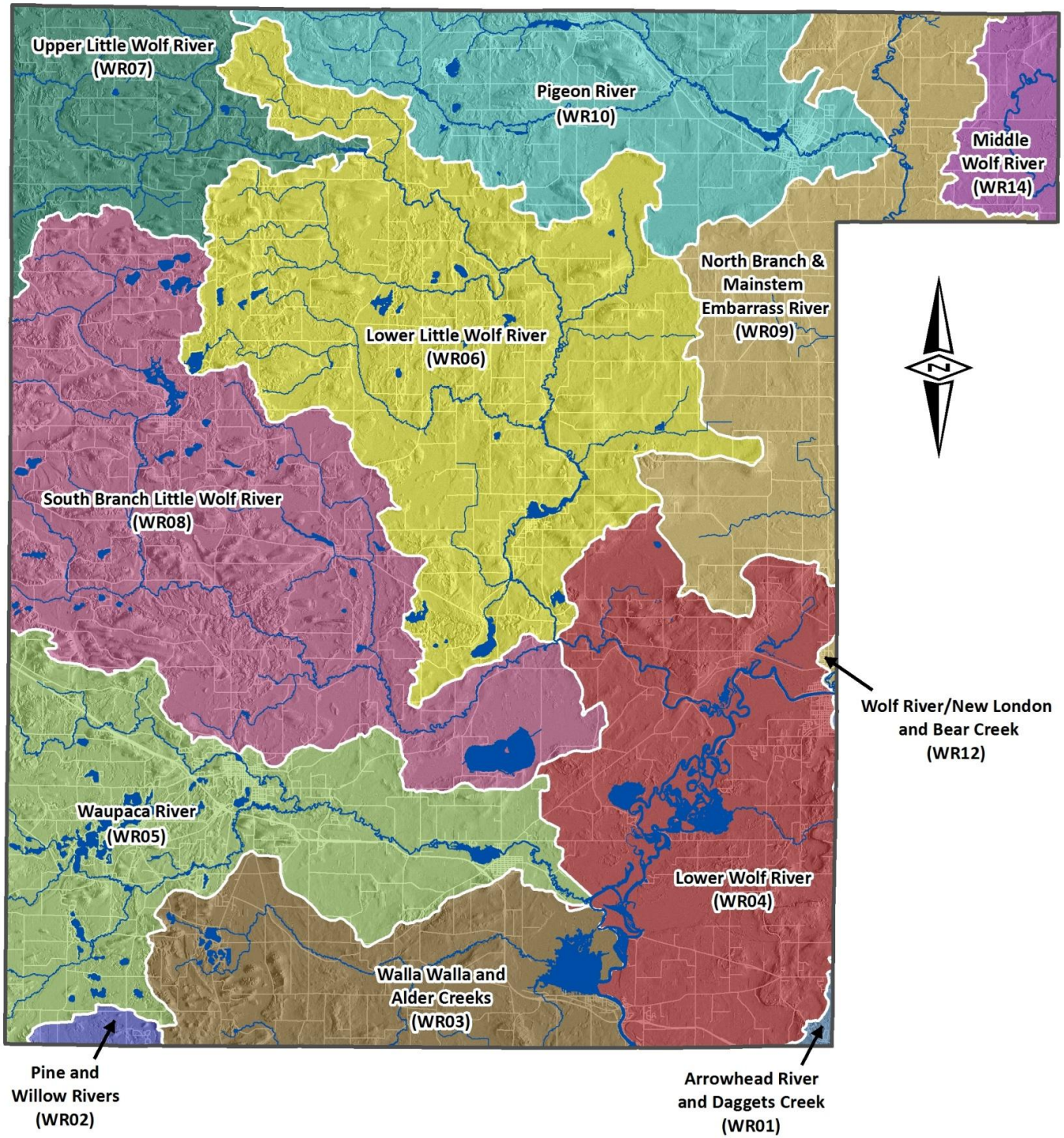
Pigeon River – South Branch (parts)
Comet Creek
Flume Creek
Blake Creek – (all Branches)
Little Wolf River (parts)
Murray Creek
Waupaca River
Allen Creek
Austin Creek
Bailey Creek
Basteen Creek
Doty Creek
Hyde Creek
Jones Creek
Mack Creek
Naylor Creek
Olsen Creek
StensonCreek
Embarrass River
McLean Creek

(ERW) WATERSHED

Pigeon
Lower Little Wolf
Lower Little Wolf
Lower Little Wolf
Lower Little Wolf
Waupaca
Waupaca
Waupaca
Walla Walla
Upper Little Wolf
South Branch Little Wolf
Pigeon
Pigeon
Upper Little Wolf
South Branch Little Wolf
Waupaca
South Branch Little Wolf
South Branch Little Wolf
Embarrass River
Walla Walla

The Animal Waste Plan Rank listed in the following watershed reviews was derived from the “Waupaca County Animal Waste Management Plan”. This plan was developed in 1986 in response to Wisconsin Statute Ag. 166, Wisconsin Farmer’s Fund Program. Although the livestock numbers have declined in the past 25 years, the numbers relative to watersheds have remained constant. In order to establish priorities and determine eligibility requirements, existing data that is available for individual watersheds is assembled in the following watershed summaries. The watershed summaries provide descriptive characteristics and quantitative assessments of the type and extent of nonpoint pollution that impacts the watersheds. Average Cropland Soil Erosion Rates were determined by the Transect Survey. Sediment Delivery from Streambank Erosion was extrapolated from DNR Priority Watershed Surveys and a streambank survey completed by a Wisconsin Conservation Corp team in the early 1990’s.

Figure 3-1: Waupaca County Watersheds



ARROWHEAD AND DAGGETS CREEK WATERSHED (WR01)

The Arrowhead River and Daggets Creek Watershed covers approximately 143 square miles in Winnebago, Waupaca and Outagamie counties. A small part of the watershed, about 1 square mile, is located in Waupaca County.

Polluted runoff problems in this watershed are widespread. The *Winnebago Comprehensive Management Plan* rated an 8.2-mile priority strip along the Arrowhead River as high priority for nonpoint source pollution abatement activities, and the *Lower Green Bay Remedial Action Plan* identified this watershed as one of 11 contributing significant amounts of pollution to the Lake Winnebago system. A study by the Northeast Wisconsin Waters for Tomorrow showed that this watershed was one of the largest contributors of total suspended solids to the Lake Winnebago system (NEWWT, 1994). Major problems in this watershed include dissolved oxygen standard violations and critical levels of soil loss. An endangered species of fish, the striped shiner (*Notropis chrysocephalus*), has been found in the watershed. The creek chubsucker (*Erimyzon oblongus*), a species now believed to be extirpated in Wisconsin, was previously reported. This species is a candidate for federal endangered species listing.

The watershed was selected as a priority watershed project in 1990 and a priority watershed plan was completed in 1992 (WDNR, 1993). The plan was prepared cooperatively by the WDNR, the Wisconsin Department of Agriculture, Trade and Consumer Protection (WDATCP), the Outagamie County Land Conservation Department, and the Winnebago County Land and Water Conservation Department, with assistance from the University of Wisconsin-Extension and the USDA Natural Resources Conservation Service (NRCS). The priority watershed plan is considered an amendment to this plan.

The *Nonpoint Source Control Plan for the Arrowhead River, Rat River and Daggets Creek Priority Watershed Project* (WDNR, 1993) describes in detail the water resources in the watershed. The plan outlines polluted runoff problems, establishes water quality goals and objectives, and identifies management practices to achieve those goals and objectives. The project expired at the end of 2004.

Due to the small percentage (<1%) of this watershed within Waupaca County, the health of this watershed depends on downstream municipalities and the LWCD does not prioritize work in this watershed very highly.

Table 3-1: Arrowhead and Daggets Creek Watershed Assessment

Land Use in the Watershed		
Major Land Use Type	Acres	WQMA Acres
Cropland	106	0
Forest	85	0
Wetlands	0	0
Watershed Totals	586	13

Erosion and Sediment Delivery		
Type / Location	Tons/Acre/Year	Tons/Year
Overall Cropland Erosion	1.5	148
Cropland Erosion in the WQMA	1.5	0
Overall Cropland Sediment Delivery	0.52	49
Sediment Delivery in the WQMA	0.52	0

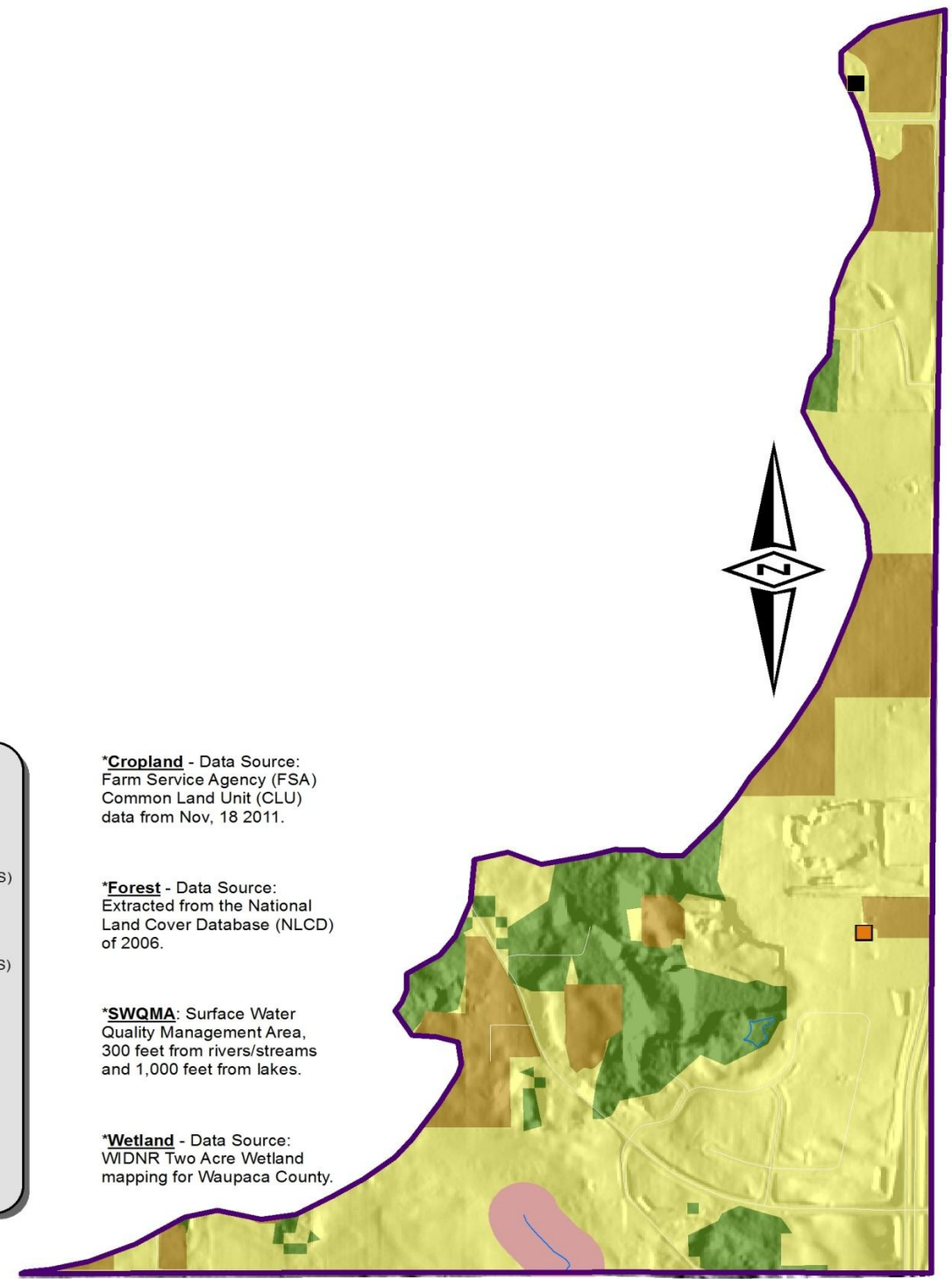
Animal Facilities in the Watershed		
Animal Facility Type	# in Watershed	# in WQMA
Dairy operations	2	0
Beef operations	0	0
Other animal facilities	0	0

DNR Nonpoint Source Priority			
Stream	Lake	Groundwater	Overall
High	Not Ranked	High	High

Unranked by the Waupaca County Animal Waste Plan due to the size of the watershed.

Cropland Proximity to Surface Water Quality Management Areas (SWQMA)

Arrowhead and Daggets Creek Watershed (WR01)



*Livestock Operations

- Beef - County Identified
- Dairy - County Identified
- Dairy - County Identified (TRM)
- Dairy - County Identified (WPDES)
- Dairy - State Registered
- Dairy - State Registered (TRM)
- Dairy - State Registered (WPDES)
- ▲ Other - County Identified

Land Cover

- *Cropland
- *Forest
- Other Open Land
- *Wetland
- Cropland within SWQMA
- *SWQMA

***Cropland** - Data Source: Farm Service Agency (FSA) Common Land Unit (CLU) data from Nov, 18 2011.

***Forest** - Data Source: Extracted from the National Land Cover Database (NLCD) of 2006.

***SWQMA**: Surface Water Quality Management Area, 300 feet from rivers/streams and 1,000 feet from lakes.

***Wetland** - Data Source: WIDNR Two Acre Wetland mapping for Waupaca County.



PINE RIVER AND WILLOW CREEK WATERSHED (WR02)

The Pine River and Willow Creek Watershed is the southernmost watershed of the Wolf River Basin and is located in Waupaca, Waushara and Winnebago counties. This watershed covers 302 square miles of which 3.2 square miles are in Waupaca County. The entire watershed drains directly to Lake Poygan.

Pine River and Willow Creek are clear, hard water streams that drain the center two-thirds of Waushara County. Substantial critical animal waste problems affect the eastern half of this watershed. Soil erosion, at rates above 2 tons per acre per year, combined with local animal waste delivery and in-stream erosion accelerated the deterioration of the trophic status of millponds on the Pine River and Willow Creek. The Pine River Willow Creek Watershed was selected as a priority watershed in 1995, and expired at the end of 2009. The priority watershed plan was prepared cooperatively by the WDNR, the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP), the Waushara County Land Conservation Department, the Winnebago Land and Water Conservation Department, with assistance from the University of Wisconsin-Extension, and the USDA Natural Resources Conservation Service (NRCS). The priority watershed plan is considered an amendment to this plan. Those portions of the watershed within Winnebago County are located in the Lower Fox River Designated Planning Area. Refer to Fox Valley Water Quality Planning Agency (FVWQPA) planning documents for additional information.

The soils, geology and other physical resources of this watershed's western half indicate the area is highly susceptible to groundwater contamination from poor land use practices (WDNR and WGNHS, 1987). A data search revealed no runoff-related groundwater contamination problems.

Due to the small percentage (1%) of this watershed within Waupaca County, the LWCD does not prioritize work in this watershed very highly.

Table 3-2: Pine River-Willow Creek Watershed Assessment

Land Use in the Watershed		
Major Land Use Type	Acres	WQMA Acres
Cropland	624	5
Forest	701	5
Wetlands	177	13
Watershed Totals	2,066	40

Erosion and Sediment Delivery		
Type / Location	Tons/Acre/Year	Tons/Year
Overall Cropland Erosion	1.4	811
Cropland Erosion in the WQMA	1.4	7
Overall Cropland Sediment Delivery	0.16	49
Sediment Delivery in the WQMA	0.16	1

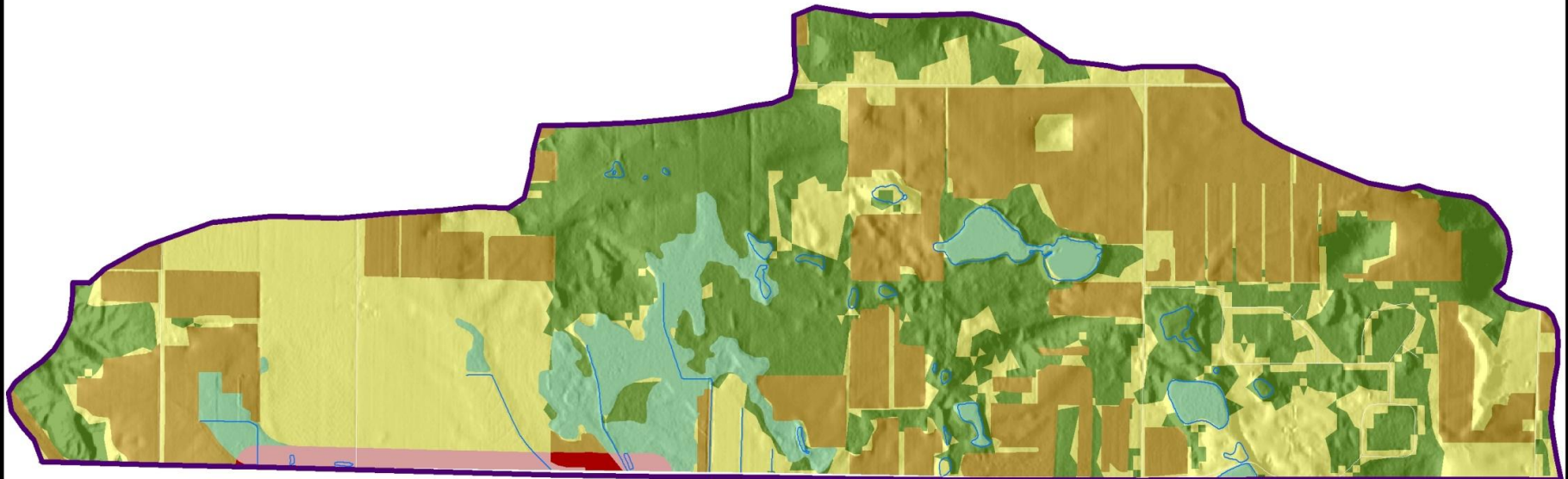
Animal Facilities in the Watershed		
Animal Facility Type	# in Watershed	# in WQMA
Dairy operations	0	0
Beef operations	0	0
Other animal facilities	0	0

DNR Nonpoint Source Priority			
Stream	Lake	Groundwater	Overall
High	Not Ranked	High	High

Unranked by the Waupaca County Animal Waste Plan due to the size of the watershed.

Cropland Proximity to Surface Water Quality Management Areas (SWQMA)

Pine River and Willow Creek Watershed (WR02)



***Cropland** - Data Source: Farm Service Agency (FSA) Common Land Unit (CLU) data from Nov, 18 2011.

***Forest** - Data Source: Extracted from the National Land Cover Database (NLCD) of 2006.



*Livestock Operations

- Beef - County Identified
- Dairy - County Identified
- Dairy - County Identified (TRM)
- Dairy - County Identified (WPDES)
- Dairy - State Registered
- Dairy - State Registered (TRM)
- Dairy - State Registered (WPDES)
- ▲ Other - County Identified

Land Cover

- *Cropland
- *Forest
- Other Open Land
- *Wetland
- Cropland within SWQMA
- *SWQMA

***SWQMA**: Surface Water Quality Management Area, 300 feet from rivers/streams and 1,000 feet from lakes.

***Wetland** - Data Source: WIDNR Two Acre Wetland mapping for Waupaca County.

WALLA WALLA AND ALDER CREEK WATERSHED (WR03)

The Walla Walla and Alder Creek Watershed (locally known as Walla Walla Creek Watershed) lies in portions of Waupaca, Waushara and Winnebago Counties on the northwest shore of Lake Poygan. The total drainage area is 112 square miles of which 57 square miles is located in Waupaca County. The Walla Walla Creek (including the entire Waupaca portion of the watershed) drains to Partridge Lake. Alder Creek, in Waushara and Winnebago Counties drains to Lake Poygan.

The Walla Walla River is severely degraded due to sediment and phosphorus. The Waupaca County Land and Water Conservation staff had not worked extensively in this area prior to 2006. Since 2006 the LWCD has targeted this watershed for more extensive work including a 2007 Targeted Runoff Management Grant for what was the highest scoring (BARNY Model) livestock facility in Waupaca County to date. A portion of the land base for one of Waupaca's two WPDES permitted farms also lies within the watershed and has seen several erosion control practices implemented on its fields since 2005. The Walla Walla watershed is ranked number one in the Waupaca County Animal Waste Management Plan for concerns over both surface and groundwater.

Those portions of the watershed within Winnebago County are in the Lower Fox River Designated Planning Area. Refer to the discussion in the Fox Valley Water Quality Planning Agency (FVWQPA) planning documents for additional information. *Winnebago Comprehensive Management Plan* rated this watershed a high priority due to critical animal waste problems and soil loss. The data search for the Wolf River Basin plan indicates polluted runoff problems with excess vegetation and habitat deterioration. Approximately 20 percent of the watershed (in the western part) is highly susceptible to groundwater contamination (WDNR and WGNHS, 1987).

Table 3-3: Walla Walla Watershed Assessment

Land Use in the Watershed		
Major Land Use Type	Acres	WQMA Acres
Cropland	12,444	2,143
Forest	7,143	1,028
Wetlands	8,551	3,996
Watershed Totals	36,806	8,689

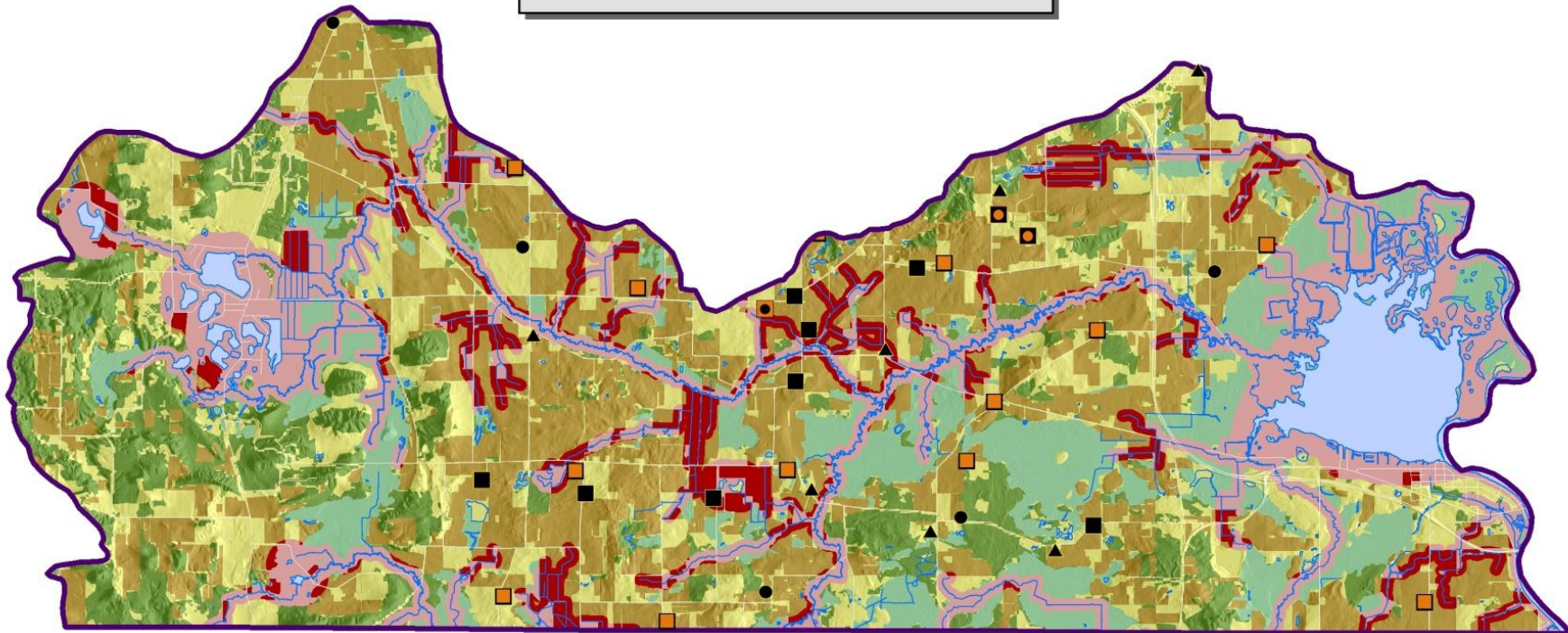
Erosion and Sediment Delivery		
Type / Location	Tons/Acre/Year	Tons/Year
Overall Cropland Erosion	1.4	17,422
Cropland Erosion in the WQMA	1.4	3,000
Overall Cropland Sediment Delivery	0.462	5,749
Sediment Delivery in the WQMA	0.462	990

Animal Facilities in the Watershed		
Animal Facility Type	# in Watershed	# in WQMA
Dairy operations	23	1
Beef operations	5	0
Other animal facilities	8	1

DNR Nonpoint Source Priority			
Stream	Lake	Groundwater	Overall
High	High	High	High

Cropland Proximity to Surface Water Quality Management Areas (SWQMA)

Walla Walla and Alder Creek Watershed (WR03)



***Wetland** - Data Source:
WIDNR Two Acre Wetland
mapping for Waupaca County.

***Forest** - Data Source:
Extracted from the National
Land Cover Database (NLCD)
of 2006.

*Livestock Operations

- Beef - County Identified
- Dairy - County Identified
- ◻ Dairy - County Identified (TRM)
- ◻ Dairy - County Identified (WPDES)
- Dairy - State Registered
- ◻ Dairy - State Registered (TRM)
- ◻ Dairy - State Registered (WPDES)
- ▲ Other - County Identified

Land Cover

- *Cropland
- *Forest
- Other Open Land
- *Wetland
- Cropland within SWQMA
- *SWQMA

***Cropland** - Data Source:
Farm Service Agency (FSA)
Common Land Unit (CLU)
data from Nov, 18 2011.

***SWQMA**: Surface Water
Quality Management Area,
300 feet from rivers/streams
and 1,000 feet from lakes.



LOWER WOLF RIVER WATERSHED (WR04)

The Lower Wolf River Watershed is 120 square miles and covers parts of Outagamie, Waupaca and Winnebago Counties. There are 103 square miles within Waupaca County. This includes a portion of the main stem Wolf River from the junction with the Embarrass River to the mouth of the Waupaca River. The main stem Wolf River flows within the watershed for about 19 miles and contains a diverse warm water sport fishery. Wetlands adjacent to the river provide excellent spawning grounds for these fish.

Severe stream bank erosion is common in the watershed. The Wolf River Preservation Association has done several extensive studies of the problems in the river itself. Development along the waterways has caused nutrient and sediment problems. Prior to 2002 the Waupaca County LWCD made it a priority to do erosion control work in the form of rip-rap projects on the stream bank of the Lower Wolf River. Several projects were completed in partnership with funding from Sturgeon for Tomorrow. After 2002 the LWCD, due to DNR permitting issues and the large amount of funding needed for such projects, has de-prioritized this type of work. Waupaca County LWCD continues to support the Wolf River Preservation Association with grant contributions from the Waupaca County Water Quality Fund.

Those portions of the watershed within Winnebago and Outagamie counties are in the Lower Fox River Designated Planning Area. Refer to the Fox Valley Water Quality Planning Agency (FVWQPA) planning documents for additional information.

Table 3-4: Lower Wolf River Assessment

Land Use in the Watershed		
Major Land Use Type	Acres	WQMA Acres
Cropland	18,705	3,106
Forest	12,217	2,154
Wetlands	19,017	5,672
Watershed Totals	65,710	14,902

Erosion and Sediment Delivery		
Type / Location	Tons/Acre/Year	Tons/Year
Overall Cropland Erosion	1.1	20,576
Cropland Erosion in the WQMA	1.1	3,417
Overall Cropland Sediment Delivery	0.363	6,790
Sediment Delivery in the WQMA	0.363	1,127

Animal Facilities in the Watershed		
Animal Facility Type	# in Watershed	# in WQMA
Dairy operations	26	6
Beef operations	7	1
Other animal facilities	9	0

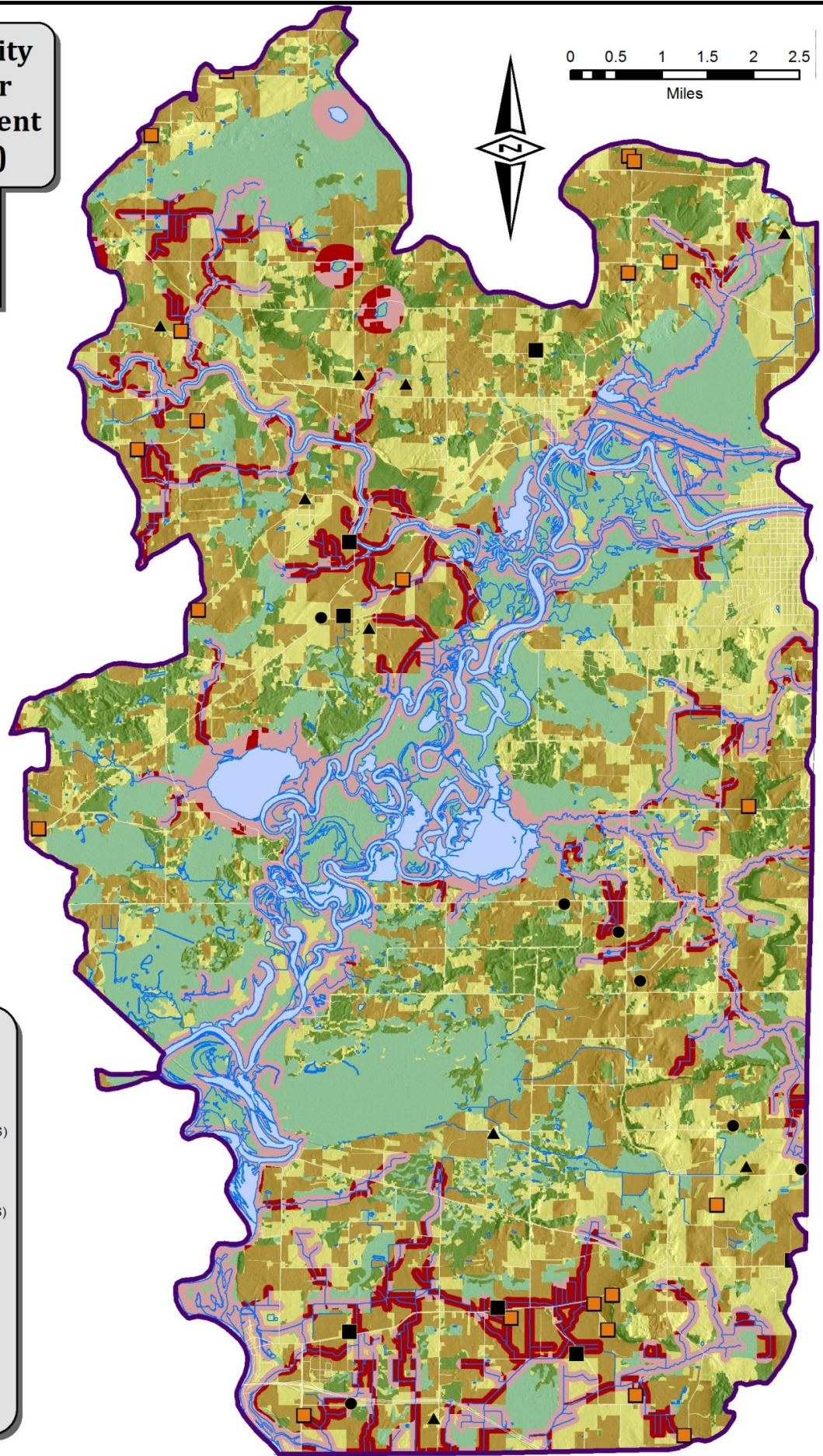
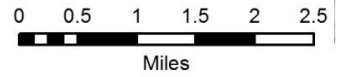
DNR Nonpoint Source Priority			
Stream	Lake	Groundwater	Overall
Low	Not Ranked	High	High

Waupaca County Animal Waste Plan Rank

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Cropland Proximity to Surface Water Quality Management Areas (SWQMA)

Lower Wolf River Watershed (WRO4)



***Wetland** - Data Source: WIDNR Two Acre Wetland mapping for Waupaca County.

***Forest** - Data Source: Extracted from the National Land Cover Database (NLCD) of 2006.

***Cropland** - Data Source: Farm Service Agency (FSA) Common Land Unit (CLU) data from Nov, 18 2011.

***SWQMA**: Surface Water Quality Management Area, 300 feet from rivers/streams and 1,000 feet from lakes.

*Livestock Operations

- Beef - County Identified
- Dairy - County Identified
- Dairy - County Identified (TRM)
- Dairy - County Identified (WPDES)
- Dairy - State Registered
- Dairy - State Registered (TRM)
- Dairy - State Registered (WPDES)
- ▲ Other - County Identified

Land Cover

- *Cropland
- *Forest
- Other Open Land
- *Wetland
- Cropland within SWQMA
- *SWQMA

WAUPACA RIVER WATERSHED (WR05)

The Waupaca River Watershed is 291 square miles and lies almost entirely in Portage and Waupaca counties, with a small part of its southwestern portion in Waushara County. Waupaca County's total drainage area is 93 square miles. The name of the river changes from the Tomorrow River as it flows from Portage County to the Waupaca River in Waupaca County. The Tomorrow/Waupaca in its entirety runs approximately 63 miles. The Waupaca River's major tributary, the Crystal River, ties into the system from the south and is included within the planning area and is classified as Class II trout waters. The Crystal River is the outlet to the Chain O' Lakes (Long Lake) which is a very prominent recreational and residential area consisting of 22 interconnected lakes. These lakes comprise approximately 725 acres and are considered as part of the Tomorrow/Waupaca River Priority Watershed Project. Recent changes to the Waupaca County Shoreland Ordinance should improve this resource, from a development standpoint, in the future.

This watershed was a DNR Priority Watershed from 1994 to 2006. The major objective of this watershed was groundwater protection. The Waupaca County portion of the inventory determined that 1,637 tons of sediment was being delivered annually from crop fields; the watershed goal was a 10% reduction. Approximately 780 lbs. of phosphorus were being delivered by barnyards; the watershed goal was a 10% reduction. Streambank erosion was 1,565 tons/yr.

A priority watershed plan was prepared cooperatively by WDNR, DATCP, NRCS, University of Wisconsin Extension, Portage County Land Conservation Department, Waupaca County Land and Water Conservation Department and Waushara County Land Conservation Department. The *Winnebago Comprehensive Management Plan* rated this watershed a medium priority due to critical local surface water problems from animal waste. The highest concentrations of livestock in Portage County occur at Amherst on the Tomorrow River. The greatest overall water quality threat in the watershed is excess nutrients (nitrates) entering groundwater. Sources of nitrate include livestock manure and agricultural fertilizers. Nitrate infiltrates into the groundwater due to the high permeability. Sandy soils pose a risk to vulnerable residents (those under 6 months old) if furnishing drinking water supplies. The Wolf River Basin Plan indicates polluted runoff problems with some habitat degradation and potential impacts from irrigation. The value of these streams (used for irrigation) as a trout fishery and the potential for polluted runoff problems make protective measures the key to good water quality in the future.

The soils, geology and other physical resources of the western 95 percent of this watershed indicate that this area is highly susceptible to groundwater contamination due to poor land use practices (WDNR and WGNHS, 1987). A data search revealed groundwater samples with contamination, mainly pesticides, in this area.

Table 3-5: Waupaca River Watershed Assessment

Land Use in the Watershed		
Major Land Use Type	Acres	WQMA Acres
Cropland	14,814	2,529
Forest	13,938	2,762
Wetlands	7,525	3,507
Watershed Totals	59,691	14,122

Erosion and Sediment Delivery		
Type / Location	Tons/Acre/Year	Tons/Year
Overall Cropland Erosion	1.3	19,258
Cropland Erosion in the WQMA	1.3	3,289
Overall Cropland Sediment Delivery	0.078	1,155
Sediment Delivery in the WQMA	0.078	197

Animal Facilities in the Watershed		
Animal Facility Type	# in Watershed	# in WQMA
Dairy operations	15	1
Beef operations	7	2
Other animal facilities	10	3

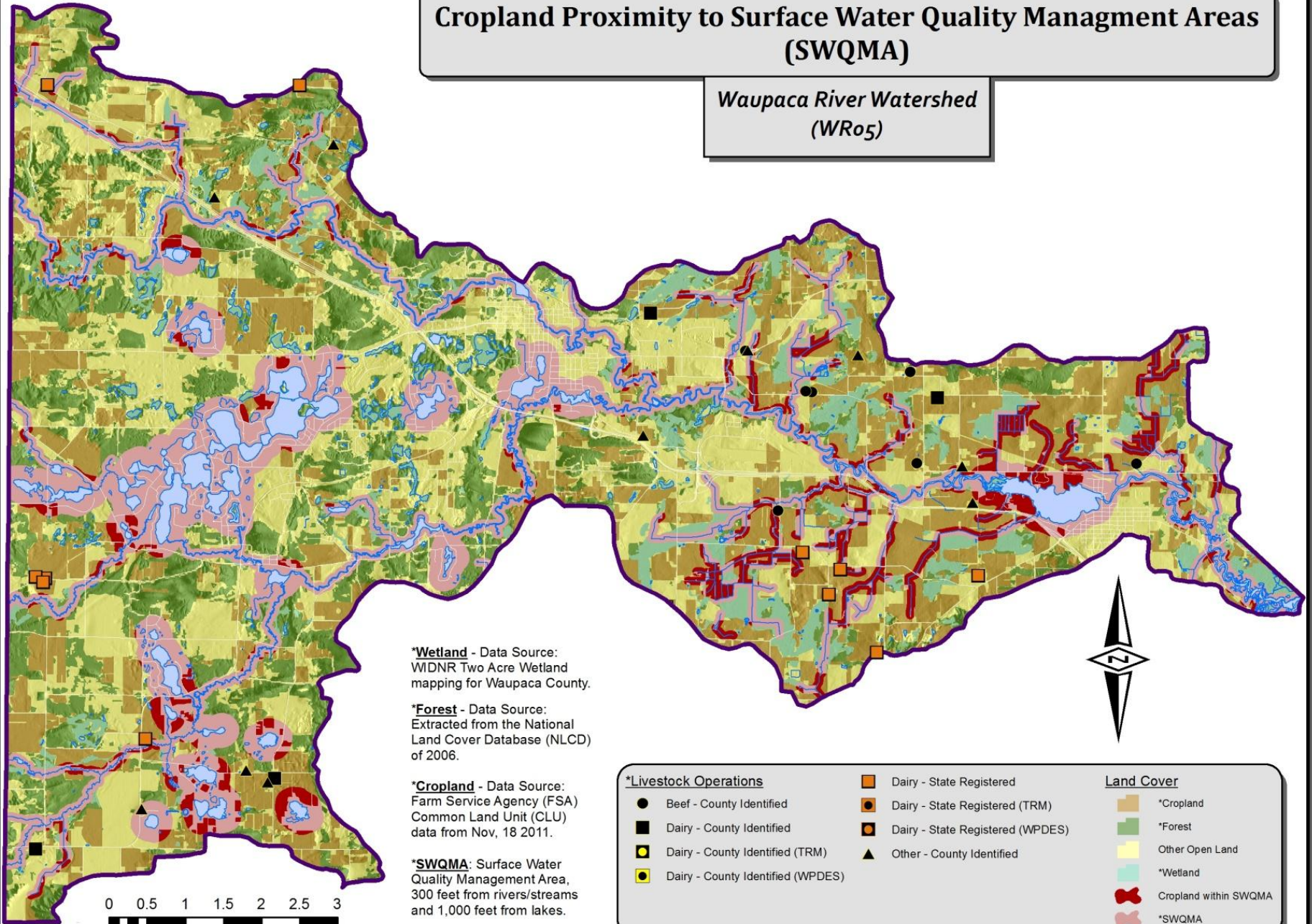
DNR Nonpoint Source Priority			
Stream	Lake	Groundwater	Overall
Medium	Not Ranked	High	High

Waupaca County Animal Waste Plan Rank

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Cropland Proximity to Surface Water Quality Management Areas (SWQMA)

Waupaca River Watershed (WR05)



***Wetland** - Data Source: WIDNR Two Acre Wetland mapping for Waupaca County.

***Forest** - Data Source: Extracted from the National Land Cover Database (NLCD) of 2006.

***Cropland** - Data Source: Farm Service Agency (FSA) Common Land Unit (CLU) data from Nov, 18 2011.

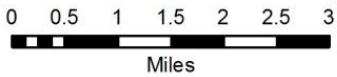
***SWQMA**: Surface Water Quality Management Area, 300 feet from rivers/streams and 1,000 feet from lakes.

*Livestock Operations

- Beef - County Identified
- Dairy - County Identified
- Dairy - County Identified (TRM)
- Dairy - County Identified (WPDES)
- Dairy - State Registered
- Dairy - State Registered (TRM)
- Dairy - State Registered (WPDES)
- ▲ Other - County Identified

Land Cover

- *Cropland
- *Forest
- Other Open Land
- *Wetland
- Cropland within SWQMA
- *SWQMA



LOWER LITTLE WOLF RIVER WATERSHED (WR06)

The Lower Little Wolf Watershed is 154 square miles and lies in central Waupaca County. Approximately 27 miles of the Little Wolf River are in this watershed, from the confluence of the South Branch Little Wolf River (WR08) to the dam at Big Falls.

The Lower Little Wolf was a DNR Priority Watershed from 1996 to 2008. The Lower Little Wolf River Priority Watershed plan was prepared cooperatively by the WDNR, the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP), and the Waupaca Land and Water Conservation Department, with assistance from the University of Wisconsin-Extension and the USDA Natural Resources Conservation Service (NRCS). The approved watershed plan is considered an amendment to this plan.

The inventory determined that 211 barnyards were delivering 5,500 lbs. of phosphorus to the stream. Streambanks contributed 1,918 tons of sediment each year. Approximately 16,700 tons of sediment was coming from cropland. Sediment reduction goals were 35% from uplands and 25% from streambanks. Phosphorus reduction goals were 25% from barnyards and 50% reduction from cropland. In 1998 the Lower Little Wolf Watershed was also selected for watershed funding in the USDA-Environmental Quality Incentive Program (EQIP).

The completed watershed report indicates a 2715 pound phosphorous reduction (209% of goal) and an 18,112 ton/acre/year reduction in soil erosion (302% of goal). Streambank erosion was reduced by 590 tons/year (118% of goal) and 28,983 acres of nutrient management plans were implemented (284% of goal).

The Winnebago Comprehensive Management Plan ranked this watershed as a medium priority for watershed selection due to local soil erosion and animal waste problems. The Wolf River Basin Plan indicated that problems related to polluted runoff exist in this watershed.

The soils, geology and other physical resources of the western and central 20 percent of this watershed indicate the area is highly susceptible to groundwater contamination by poor land use practices (WDNR and WGNHS, 1987). The remaining 80 percent of the watershed lies in an area of medium susceptibility.

Table 3-6: Lower Little Wolf Watershed Assessment

Land Use in the Watershed		
Major Land Use Type	Acres	WQMA Acres
Cropland	34,273	5,271
Forest	20,422	2,824
Wetlands	29,661	7,407
Watershed Totals	98,375	18,486

Erosion and Sediment Delivery		
Type / Location	Tons/Acre/Year	Tons/Year
Overall Cropland Erosion	1.3	44,555
Cropland Erosion in the WQMA	1.3	6,852
Overall Cropland Sediment Delivery	0.429	14,703
Sediment Delivery in the WQMA	0.429	2,261

Animal Facilities in the Watershed		
Animal Facility Type	# in Watershed	# in WQMA
Dairy operations	112	27
Beef operations	31	2
Other animal facilities	42	11

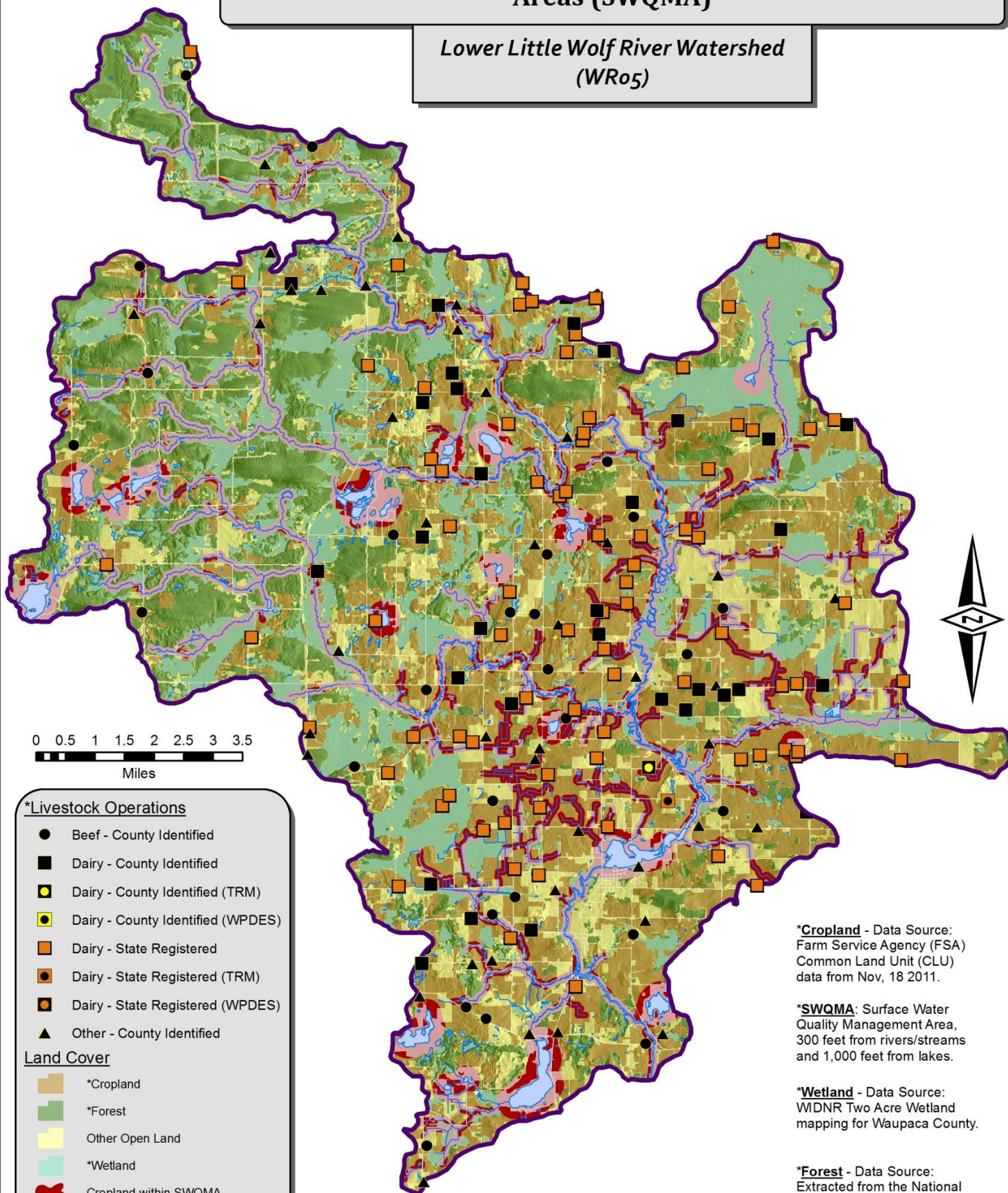
DNR Nonpoint Source Priority			
Stream	Lake	Groundwater	Overall
Medium	Not Ranked	High	High

Waupaca County Animal Waste Plan Rank

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Cropland Proximity to Surface Water Quality Management Areas (SWQMA)

Lower Little Wolf River Watershed (WR05)



0 0.5 1 1.5 2 2.5 3 3.5
Miles

*Livestock Operations

- Beef - County Identified
- Dairy - County Identified
- ◻ Dairy - County Identified (TRM)
- ◻ Dairy - County Identified (WPDES)
- Dairy - State Registered
- ◻ Dairy - State Registered (TRM)
- ◻ Dairy - State Registered (WPDES)
- ▲ Other - County Identified

Land Cover

- *Cropland
- *Forest
- Other Open Land
- *Wetland
- Cropland within SWQMA
- *SWQMA

***Cropland** - Data Source:
Farm Service Agency (FSA)
Common Land Unit (CLU)
data from Nov, 18 2011.

***SWQMA**: Surface Water
Quality Management Area,
300 feet from rivers/streams
and 1,000 feet from lakes.

***Wetland** - Data Source:
WDNR Two Acre Wetland
mapping for Waupaca County.

***Forest** - Data Source:
Extracted from the National
Land Cover Database (NLCD)
of 2006.

UPPER LITTLE WOLF RIVER WATERSHED (WR07)

The Upper Little Wolf River Watershed is in Marathon, Portage, Shawano and Waupaca Counties and is 182 square miles. The total drainage area within Waupaca County is 45 square miles. Few livestock operations exist in the Waupaca portion of this watershed. Sediment and phosphorus delivery from stream bank erosion due to natural causes and development pressures are a concern in this watershed.

The Winnebago Comprehensive Management Plan lists the Upper Little Wolf River Watershed as a "medium" priority for watershed selection due to local significant animal waste problems and a soil erosion rate of 2.2 tons per acre per year. The Wolf River Basin Plan indicated that habitat deterioration occurs from stream bank pasturing and cropland runoff.

The soils, geology and other physical resources of the entire watershed indicate it is highly susceptible to groundwater contamination by poor land use practices (WDNR and WGNHS, 1987). A data search revealed groundwater samples contaminated mainly by pesticides.

Table 3-7: Upper Little Wolf River Assessment

Land Use in the Watershed		
Major Land Use Type	Acres	WQMA Acres
Cropland	4,776	410
Forest	12,301	1,239
Wetlands	8,749	2,208
Watershed Totals	28,776	4,372

Erosion and Sediment Delivery		
Type / Location	Tons/Acre/Year	Tons/Year
Overall Cropland Erosion	1.0	4,776
Cropland Erosion in the WQMA	1.0	410
Overall Cropland Sediment Delivery	0.06	287
Sediment Delivery in the WQMA	0.06	25

Animal Facilities in the Watershed		
Animal Facility Type	# in Watershed	# in WQMA
Dairy operations	12	3
Beef operations	5	1
Other animal facilities	6	1

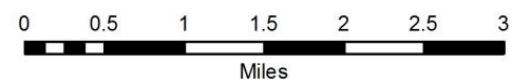
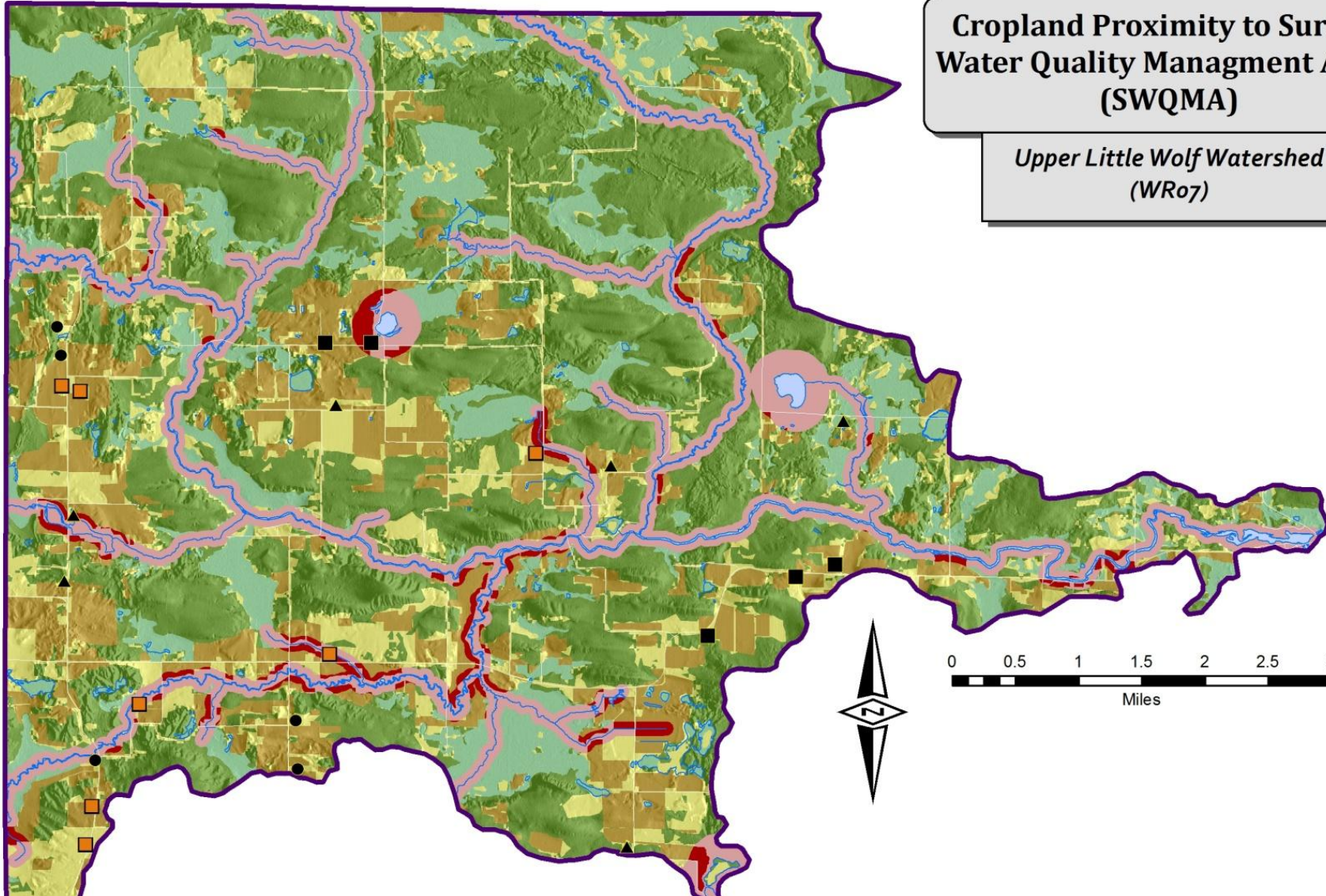
DNR Nonpoint Source Priority			
Stream	Lake	Groundwater	Overall
Medium	Not Ranked	High	High

Waupaca County Animal Waste Plan Rank

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Cropland Proximity to Surface Water Quality Management Areas (SWQMA)

Upper Little Wolf Watershed (WR07)



*Livestock Operations		Land Cover	
● Beef - County Identified	■ Dairy - State Registered	■ *Cropland	■ *Forest
■ Dairy - County Identified	■ Dairy - State Registered (TRM)	■ Other Open Land	■ *Wetland
■ Dairy - County Identified (TRM)	■ Dairy - State Registered (WPDES)	■ Cropland within SWQMA	■ *SWQMA
■ Dairy - County Identified (WPDES)	▲ Other - County Identified		

***Cropland** - Data Source: Farm Service Agency (FSA) Common Land Unit (CLU) data from Nov, 18 2011.

***Forest** - Data Source: Extracted from the National Land Cover Database (NLCD) of 2006.

***SWQMA**: Surface Water Quality Management Area, 300 feet from rivers/streams and 1,000 feet from lakes.

***Wetland** - Data Source: WIDNR Two Acre Wetland mapping for Waupaca County.

SOUTH BRANCH LITTLE WOLF RIVER WATERSHED (WR08)

The South Branch Little Wolf River Watershed is approximately 160 square miles in Waupaca and Portage Counties. The drainage area within Waupaca County is 146 square miles. The South Branch Little Wolf River Watershed drains the area generally to the north and east of the city of Waupaca and contains 64 miles of the South Branch Little Wolf River as the major water feature. The South Branch drains to the Little Wolf River and eventually into the Wolf River and the Lake Winnebago/Fox River/Green Bay system.

This watershed ranks “high” for lakes and groundwater and “low” for streams according to the WDNR’s Upper Fox River Basin Plan (1997). No point-source discharges are contained within this watershed. This is a large area of land with an expanding row crop base. A number of lakes have developed management plans. There are several feeder streams that have had trout classification in the past, but are now forage class due to agricultural runoff.

Table 3-8: South Branch of the Little Wolf Assessment

Land Use in the Watershed		
Major Land Use Type	Acres	WQMA Acres
Cropland	25,209	3,652
Forest	29,762	3,580
Wetlands	21,571	7,242
Watershed Totals	93,167	17,302

Erosion and Sediment Delivery		
Type / Location	Tons/Acre/Year	Tons/Year
Overall Cropland Erosion	1.1	27,730
Cropland Erosion in the WQMA	1.1	4,017
Overall Cropland Sediment Delivery	0.066	1,664
Sediment Delivery in the WQMA	0.066	241

Animal Facilities in the Watershed		
Animal Facility Type	# in Watershed	# in WQMA
Dairy operations	36	6
Beef operations	16	2
Other animal facilities	25	3

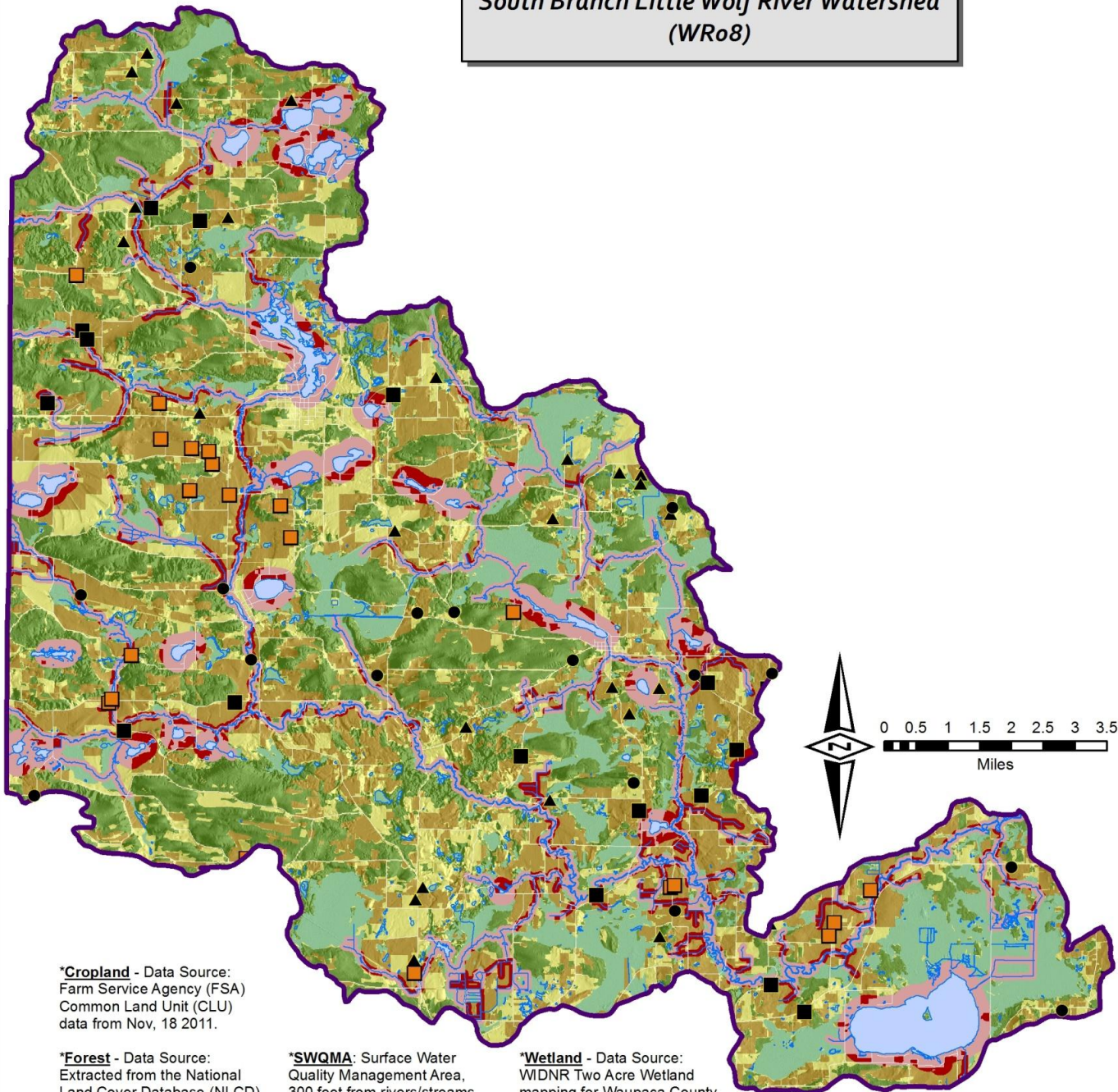
DNR Nonpoint Source Priority			
Stream	Lake	Groundwater	Overall
Low	High	High	High

Waupaca County Animal Waste Plan Rank

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Cropland Proximity to Surface Water Quality Management Areas (SWQMA)

South Branch Little Wolf River Watershed (WRo8)



***Cropland** - Data Source: Farm Service Agency (FSA) Common Land Unit (CLU) data from Nov, 18 2011.

***Forest** - Data Source: Extracted from the National Land Cover Database (NLCD) of 2006.

***SWQMA**: Surface Water Quality Management Area, 300 feet from rivers/streams and 1,000 feet from lakes.

***Wetland** - Data Source: WIDNR Two Acre Wetland mapping for Waupaca County.

*Livestock Operations		Land Cover	
● Beef - County Identified	■ Dairy - State Registered	■ *Cropland	■ Cropland within SWQMA
■ Dairy - County Identified	■ Dairy - State Registered (TRM)	■ *Forest	■ *SWQMA
■ Dairy - County Identified (TRM)	■ Dairy - State Registered (WPDES)	■ Other Open Land	
■ Dairy - County Identified (WPDES)	▲ Other - County Identified	■ *Wetland	

NORTH BRANCH AND MAINSTEM EMBARRASS WATERSHED (WR09)

The North Branch and Mainstem Embarrass River Watershed drainage area is 313 square miles within Outagamie, Waupaca, and Shawano Counties. The total drainage area located in Waupaca County is 72 square miles. This watershed includes 99 miles of the North Branch and Mainstem of the Embarrass River. Those portions in Outagamie County are in the Lower Fox River Designated Planning Area. Refer to the Fox Valley Water Quality Planning Agency (FVWQPA) planning documents for additional information.

The Wolf River Management Plan determined that the Embarrass River delivered 1,407,911 pounds of sediment/day during a 2.1 inch rainfall event in 1997. The Winnebago Comprehensive Management Plan ranked this watershed a "high" priority because of critical animal waste and soil erosion problems. The Wolf River Basin plan indicates severe polluted runoff problems exist, with heavy soil losses, impaired fisheries, excess vegetation, and dissolved oxygen violations.

In the period from 2008 to 2011 Waupaca County LWCD has targeted this area within the county as a major focus of its agricultural runoff work. Four DNR Targeted Runoff Management Grants have been received and implemented on farms in that period. The LWCD will continue to focus its attention in this watershed due to the Animal Waste Plan Rank and the availability of funds to implement Best Management Practices.

Table 3-9: North Branch and Main Stem Embarrass Assessment

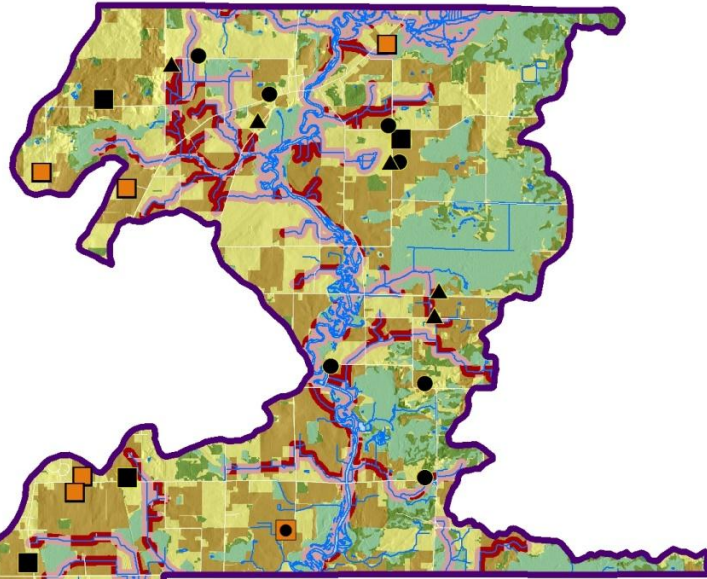
Land Use in the Watershed		
Major Land Use Type	Acres	WQMA Acres
Cropland	17,219	1,690
Forest	4,528	457
Wetlands	13,047	2,442
Watershed Totals	46,197	6,530

Erosion and Sediment Delivery		
Type / Location	Tons/Acre/Year	Tons/Year
Overall Cropland Erosion	1.1	18,941
Cropland Erosion in the WQMA	1.1	1,859
Overall Cropland Sediment Delivery	0.363	6,250
Sediment Delivery in the WQMA	0.363	613

Animal Facilities in the Watershed		
Animal Facility Type	# in Watershed	# in WQMA
Dairy operations	41	0
Beef operations	12	3
Other animal facilities	10	1

DNR Nonpoint Source Priority			
Stream	Lake	Groundwater	Overall
High	High	High	High

Cropland Proximity to Surface Water Quality Management Areas (SWQMA)



North Branch & Mainstem Embarras River Watershed (WR09)

***Cropland** - Data Source: Farm Service Agency (FSA) Common Land Unit (CLU) data from Nov, 18 2011.

***Wetland** - Data Source: WIDNR Two Acre Wetland mapping for Waupaca County.

***SWQMA**: Surface Water Quality Management Area, 300 feet from rivers/streams and 1,000 feet from lakes.

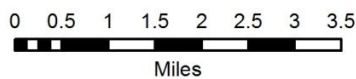
***Forest** - Data Source: Extracted from the National Land Cover Database (NLCD) of 2006.

***Livestock Operations**

- Beef - County Identified
- Dairy - County Identified
- Dairy - County Identified (TRM)
- Dairy - County Identified (WPDES)
- Dairy - State Registered
- Dairy - State Registered (TRM)
- Dairy - State Registered (WPDES)
- ▲ Other - County Identified

Land Cover

- *Cropland
- *Forest
- Other Open Land
- *Wetland
- Cropland within SWQMA
- *SWQMA



PIGEON RIVER WATERSHED (WR10)

The Pigeon River Watershed lies in south central Shawano and north central Waupaca Counties and covers 116 square miles of which 76 square miles is located in Waupaca County. This includes 25 mile of the South Branch of the Pigeon River and the Pigeon Lake impoundment in Clintonville.

The *Winnebago Comprehensive Management Plan* ranked the Pigeon River a "high" priority due to animal waste and soil erosion problems with a critical average soil loss rate of 3.7 tons per acre per year. The Wolf River Basin Plan indicated problems with excess vegetation, turbidity, and habitat degradation (Gansberg, 1993).

The soils, geology and other physical resources in the watershed's northwest portion indicate it is highly susceptible to groundwater contamination by poor land use practices. Approximately 70 percent of the remaining land area is of medium susceptibility. No runoff-related groundwater contamination problems have been documented in this area.

The Pigeon River Watershed yields a tremendous sediment and phosphorus load to Pigeon Lake. The Lake District has utilized a weed harvester for years just to allow public use of the water body

Data collected by the Pigeon River Lake District in 1997 indicated the following results:

Water Quality	phosphorus, poor
Secchi	very poor, lowest rating

Average sediment delivery 1977-97: 1.2 feet
 $\frac{3}{4}$ " per year over the entire water body
16,171 Tons/Year (includes cropland and streambank)
.61 Tons/Acre/Year delivery

Refer to page 94-95 for more information on the recent draw downs of the Pigeon River millpond.

Table 3-10: Pigeon River Assessment

Land Use in the Watershed		
Major Land Use Type	Acres	WQMA Acres
Cropland	17,605	2,443
Forest	8,077	1,324
Wetlands	9,501	3,246
Watershed Totals	48,407	9,146

Erosion and Sediment Delivery		
Type / Location	Tons/Acre/Year	Tons/Year
Overall Cropland Erosion	1.9	33,450
Cropland Erosion in the WQMA	1.9	4,642
Overall Cropland Sediment Delivery	0.627	11,038
Sediment Delivery in the WQMA	0.627	1,532

Animal Facilities in the Watershed		
Animal Facility Type	# in Watershed	# in WQMA
Dairy operations	60	8
Beef operations	10	1
Other animal facilities	37	8

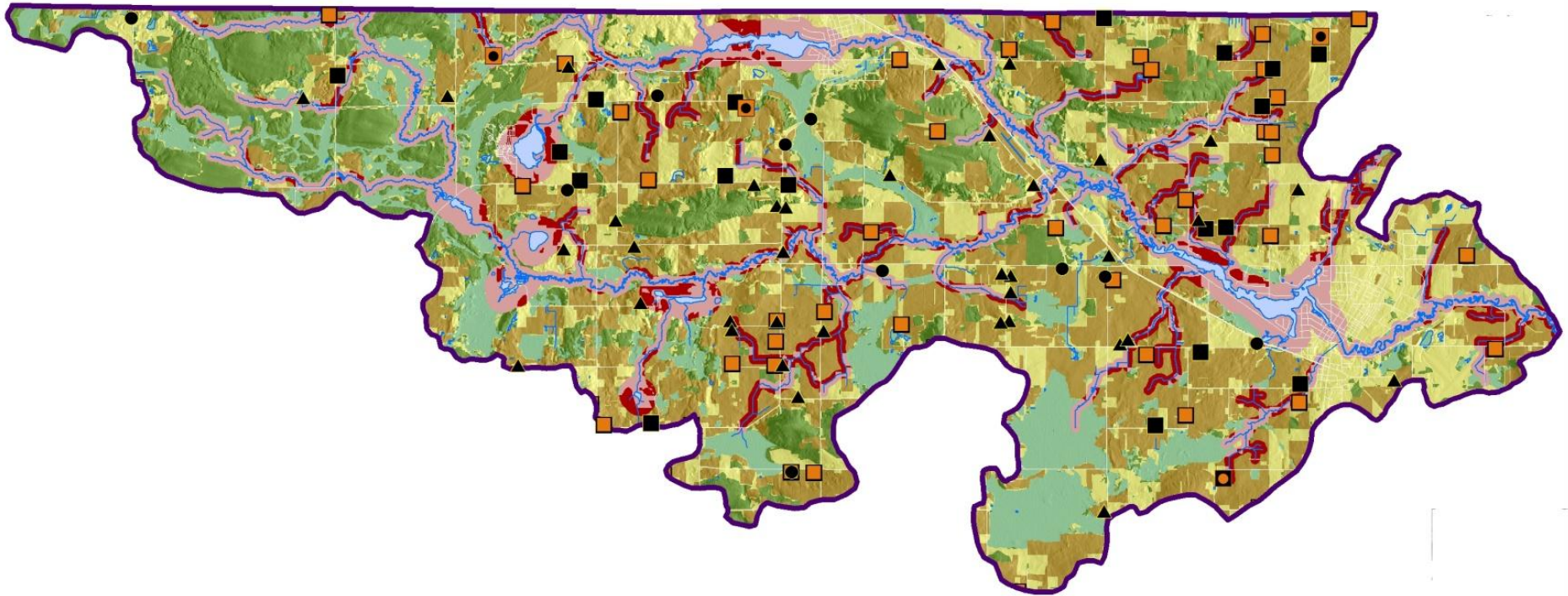
DNR Nonpoint Source Priority			
Stream	Lake	Groundwater	Overall
Medium	High	Low	Low

Waupaca County Animal Waste Plan Rank

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Cropland Proximity to Surface Water Quality Management Areas (SWQMA)

Pigeon River Watershed (WR10)



0 0.5 1 1.5 2 2.5 3
Miles

***Wetland** - Data Source:
WIDNR Two Acre Wetland
mapping for Waupaca County.

***Forest** - Data Source:
Extracted from the National
Land Cover Database (NLCD)
of 2006.

*Livestock Operations

- Beef - County Identified
- Dairy - County Identified
- ◐ Dairy - County Identified (TRM)
- ◑ Dairy - County Identified (WPDES)
- ◓ Dairy - State Registered
- ◔ Dairy - State Registered (TRM)
- ◕ Dairy - State Registered (WPDES)
- ▲ Other - County Identified

Land Cover

- *Cropland
- *Forest
- Other Open Land
- *Wetland
- Cropland within SWQMA
- *SWQMA

***Cropland** - Data Source:
Farm Service Agency (FSA)
Common Land Unit (CLU)
data from Nov, 18 2011.

***SWQMA**: Surface Water
Quality Management Area,
300 feet from rivers/streams
and 1,000 feet from lakes.



MIDDLE WOLF RIVER (WR14)

The 143-square-mile Middle Wolf River Watershed is in Shawano, Waupaca and Outagamie Counties. The watershed extends from the Shawano Dam to where the Shioc River meets the Wolf River north of Shiocton and contains 47 miles of the Wolf River. The portion of watershed located in Waupaca County is about 15.3 square miles.

Only a small portion of this watershed is located in Waupaca County. Bank erosion is identified as a significant problem on the Wolf River. The *Winnebago Comprehensive Management Plan* ranked the Middle Wolf River Watershed a "high" priority due to animal waste problems and soil erosion rates of 3.1 tons/acre/year. The Wolf River Basin Plan found that streams of this watershed, including the mainstem Wolf River, are suffering from streambank erosion and animal waste problems. Groundwater concerns were ranked as medium under the priority watershed selection process. The northern 20 percent of the watershed are of highest concern for groundwater contamination due to poor land use practices. The remaining 80 percent of the land is of medium susceptibility (WDNR and WGNHS, 1987).

Table 3-11: Land Use in the Middle Wolf Watershed

Land Use in the Watershed		
Major Land Use Type	Acres	WQMA Acres
Cropland	1,188	106
Forest	2,006	125
Wetlands	4,976	1,076
Watershed Totals	9,842	1,718

Erosion and Sediment Delivery		
Type / Location	Tons/Acre/Year	Tons/Year
Overall Cropland Erosion	1.0	1,188
Cropland Erosion in the WQMA	1.0	106
Overall Cropland Sediment Delivery	0.33	392
Sediment Delivery in the WQMA	0.33	35

Animal Facilities in the Watershed		
Animal Facility Type	# in Watershed	# in WQMA
Dairy operations	1	0
Beef operations	0	0
Other animal facilities	1	0

DNR Nonpoint Source Priority			
Stream	Lake	Groundwater	Overall
High	Low	High	High

Waupaca County Animal Waste Plan Rank

6 of 9

Cropland Proximity to Surface Water Quality Management Areas (SWQMA)

Middle Wolf River Watershed (WR14)

*Livestock Operations

- Beef - County Identified
- Dairy - County Identified
- Dairy - County Identified (TRM)
- Dairy - County Identified (WPDES)
- Dairy - State Registered
- Dairy - State Registered (TRM)
- Dairy - State Registered (WPDES)
- ▲ Other - County Identified

Land Cover

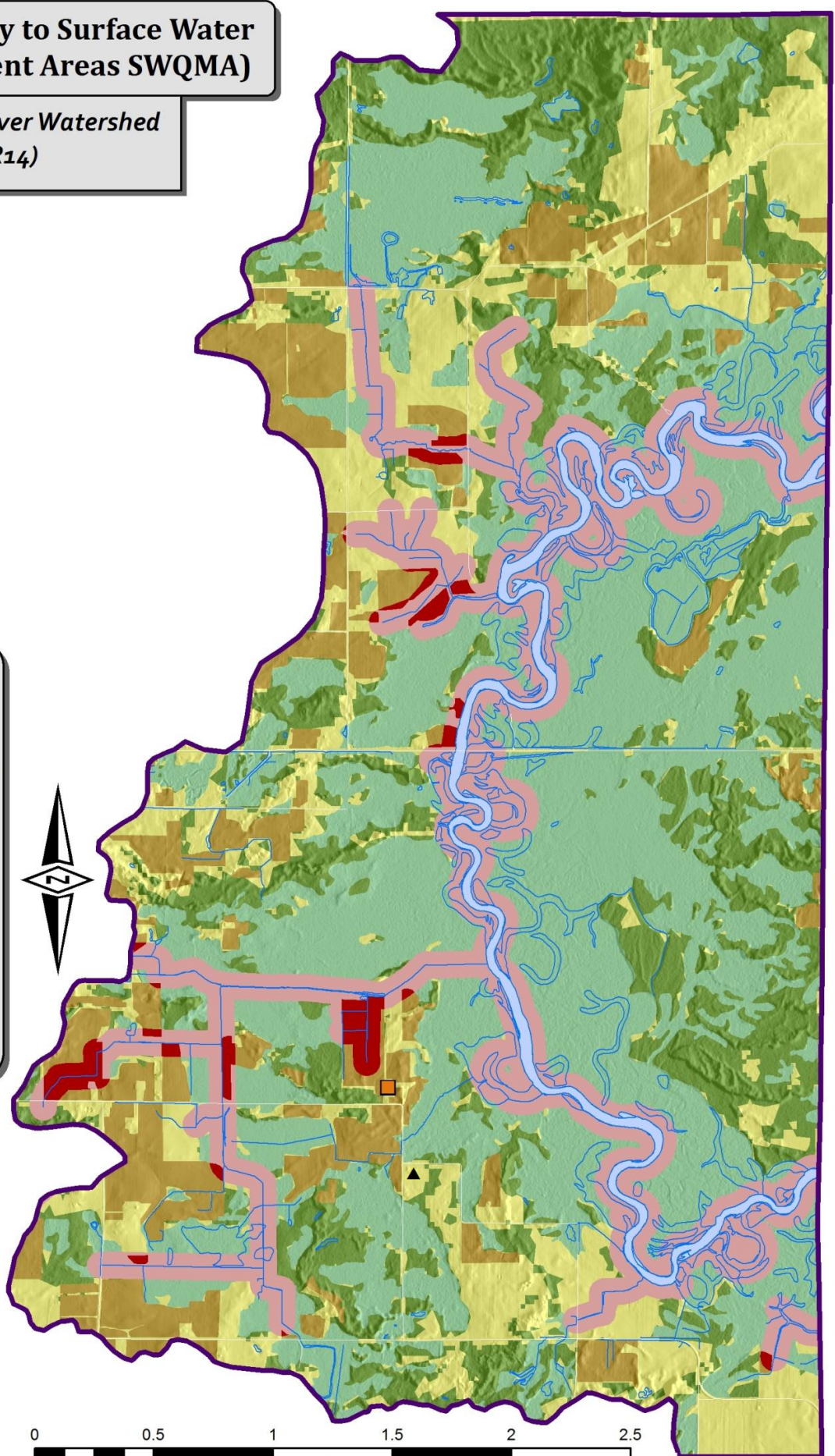
- *Cropland
- *Forest
- Other Open Land
- *Wetland
- Cropland within SWQMA
- *SWQMA

***Cropland** - Data Source: Farm Service Agency (FSA) Common Land Unit (CLU) data from Nov, 18 2011.

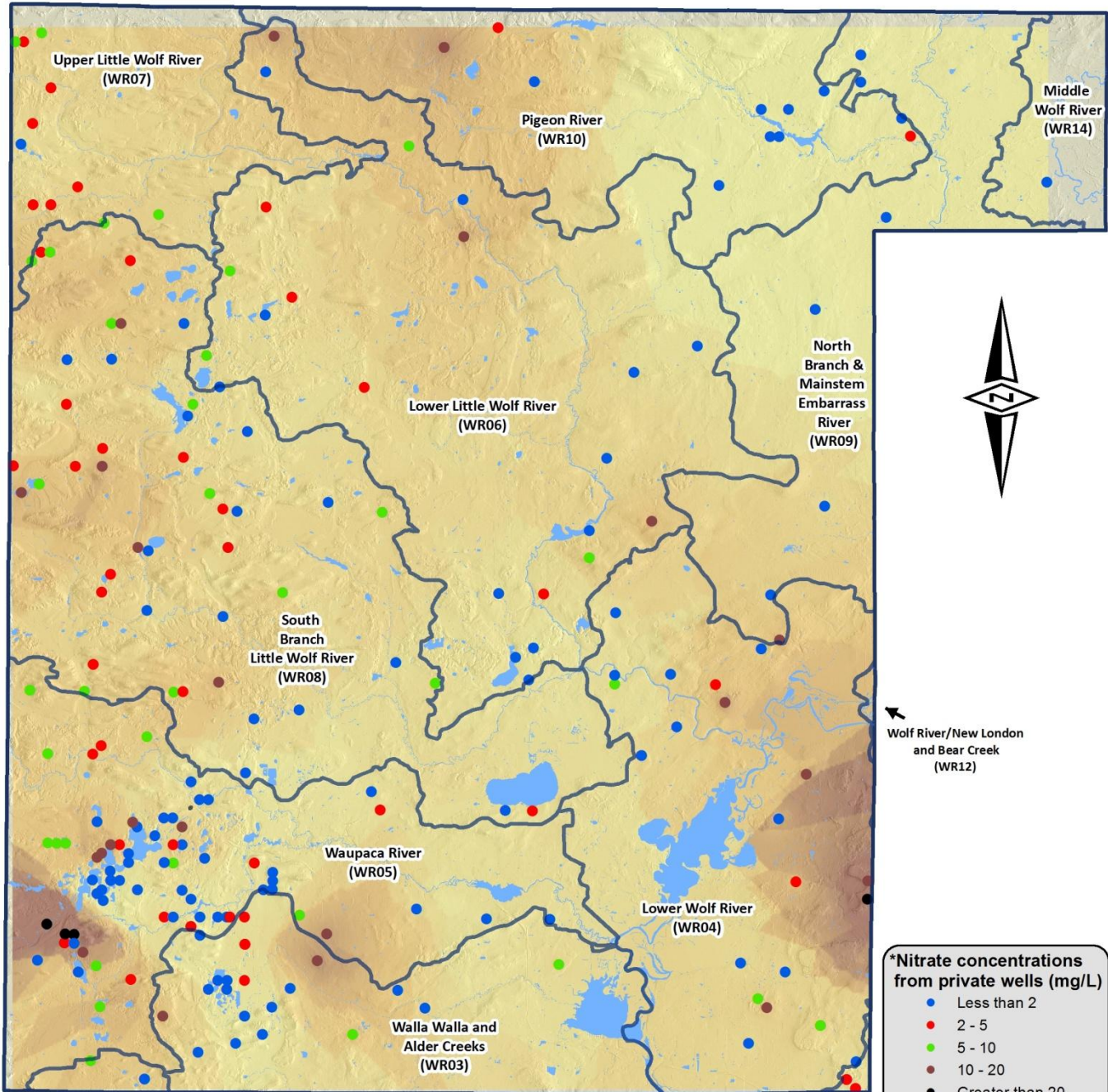
***Forest** - Data Source: Extracted from the National Land Cover Database (NLCD) of 2006.

***SWQMA**: Surface Water Quality Management Area, 300 feet from rivers/streams and 1,000 feet from lakes.

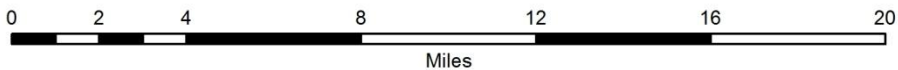
***Wetland** - Data Source: WIDNR Two Acre Wetland mapping for Waupaca County.



Waupaca County Nitrate Results



*This map represents voluntarily submitted samples from the Wisconsin DNR Groundwater Retrieval Network - accessed Feb. 2012



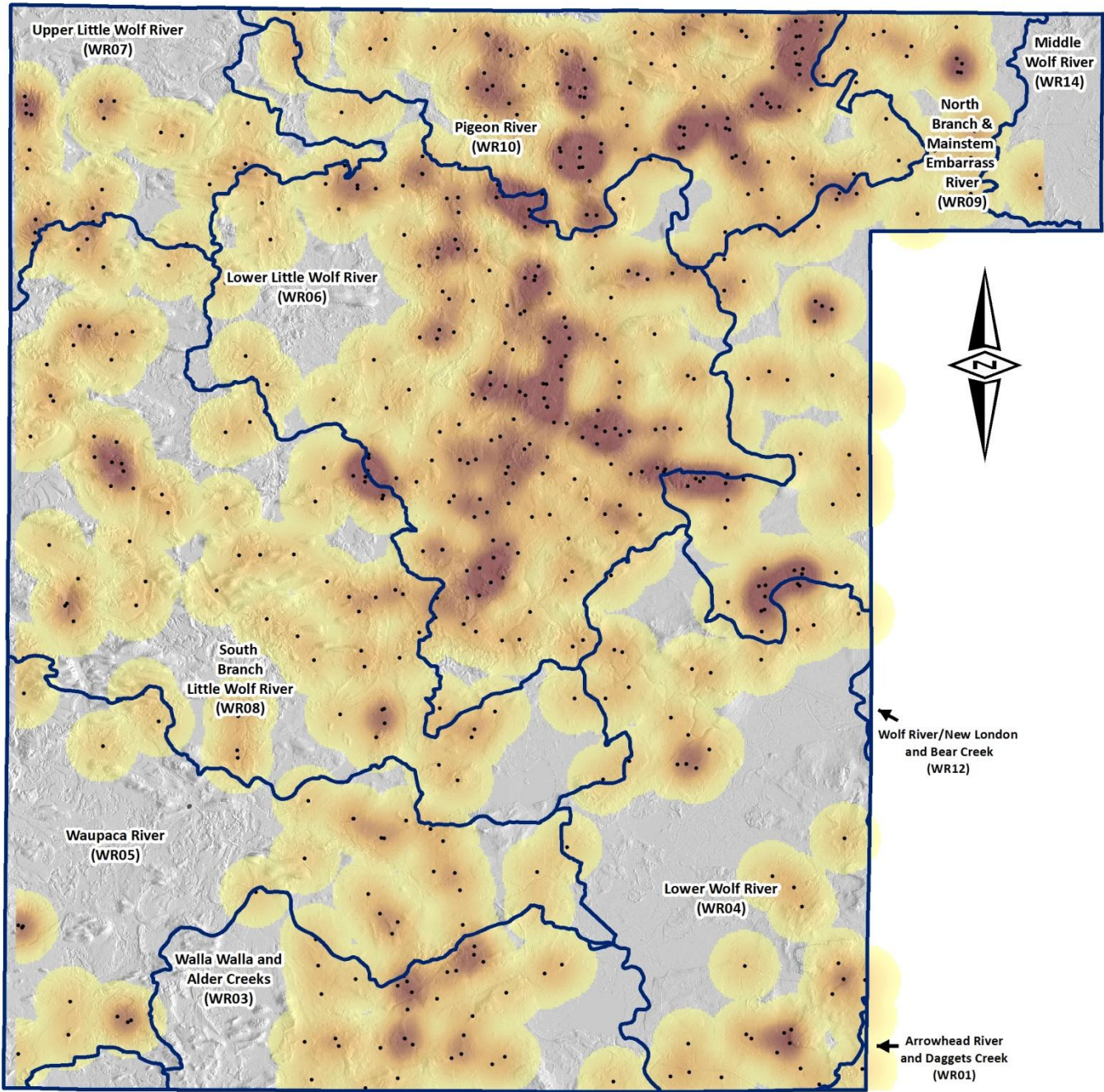
***Nitrate concentrations from private wells (mg/L)**

- Less than 2
- 2 - 5
- 5 - 10
- 10 - 20
- Greater than 20

Estimated Nitrate Levels in Groundwater

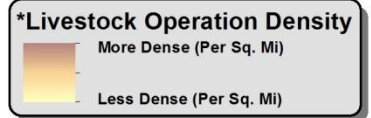
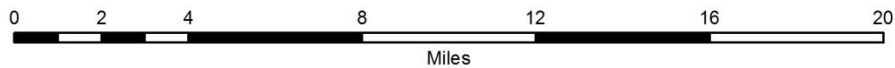
- High (>20 mg/L)
- Low (< 3 mg/L)

Waupaca County Livestock Operations - 2011



Pine and Willow Rivers (WR02)

* Livestock Operation locations are State Registered or County identified.



Summary of Watershed Data (2011) Subject to Agricultural Performance Standards

Watershed	# of Animal operations	# of Animal operations in WQMA	Acres of Cropland	Acres of Cropland in WQMA
Arrowhead River/Daggets Creek	2	0	106	0
Pine River/Willow Creek	0	0	624	5
Walla Walla/Alder Creek	36	2	12,444	2,143
Lower Wolf River	42	7	18,705	3,106
Tomorrow/Waupaca River	32	6	14,814	2,529
Lower Little Wolf River	185	40	34,273	5,271
Upper Little Wolf River	23	5	4,776	410
South Branch Little Wolf River	77	11	25,209	3,652
North Branch & Main Stem Embarrass River	63	4	17,219	1,690
Pigeon River	107	17	17,605	2,443
Middle Wolf River	2	0	1,188	106
Totals	569	92	129,358	21,355

CHAPTER 4 PRIORITY FARM EVALUATION AND NOTIFICATION STRATEGY

Identification of Priority Farms

During the span of the current LWRM plan (2006-2011) Waupaca County has not begun an inventory of the 2006 LWRM plan priority farms. This was in part due to a lack of a dedicated staff position to inventory and keep geospatial records and also due in part to the philosophy of the LWCD to pursue compliance through only voluntary measures. While the LWCD, at the request of the CAC, will attempt to maintain some of that philosophy it must be recognized that enforcement will become a necessary tool to achieve full compliance with the agricultural performance standards in the future.

Farms that would be considered “priority farms” are those that are found to be noncompliant with the state prohibitions and performance standards. Noncompliance will be determined by onsite evaluations, records review and geospatial data. Additionally, priority farms will be addressed from citizen complaints and inter-agency cooperation. The Agricultural Performance Standards and Prohibitions will be used to evaluate all farms as they are inventoried.

Agricultural Performance Standards and Prohibitions

The following is a summary of DNR Administrative Rule NR 151, Sub-Chapter II - Agricultural Performance Standards and Prohibitions as revised in December 2010. These rules are the basic premise under which this plan will be implemented with respect to eliminating agricultural runoff and reducing phosphorous and nitrogen to surface and groundwater. For a more detailed definition of NR 151 please go to http://docs.legis.wisconsin.gov/code/admin_code/nr/151.pdf

NR 151.02 Sheet, Rill and Wind Erosion

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

NR 151.03 Tillage Setback

1. No tillage operation shall impact stream integrity.
2. No tillage may be conducted within 5’ of surface waters.
3. Producers shall maintain the 5’ tillage setback in sod or vegetative cover.

NR 151.04 Phosphorous Index Performance Standards

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

NR 151.05 Manure Storage Facilities Performance Standards

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

NR 151.055 Process Wastewater

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

NR 151.06 Clean Water Diversions

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

NR 151.07 Nutrient Management

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

NR 151.08 Manure Management Prohibitions

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

Inventory Procedure to Identify Priority Farms

Waupaca County will begin to inventory farms and identify priority farms, in 2012, based on the following priorities:

1. Existing Farmland Preservation Contracts – Waupaca County has 52 existing contracts that expire after 2012. The Farmland Preservation Program specifies that all farms in the program will be in compliance by 2015. Waupaca contracts signed after December 15, 2004 are subject to the Agricultural Performance Standards. There are 9 contracts in that category and those will be top priority. The remaining FPP contracts will be next in priority.
2. Livestock Operations in the WQMA- According to the GIS data from Chapter 3 there are 92 animal operations in the Water Quality Management Area of Waupaca County. 52 of those are dairy operations and have the highest chance of Agricultural Performance Standards violations due to manure and process wastewater volumes. The remaining 40 livestock operations will follow in priority.
3. New Farmland Preservation Participants- Waupaca County is expected to have its new Farmland Preservation Plan certified for use by 2014. While still two years away this event could potentially produce the largest shift in workload to the LWCD. There are a minimum of 7 townships that are ready to have Exclusive Agricultural Zoning designated. Within those townships are 223 livestock operations and over 99,400 acres of eligible land expected to be designated Exclusive Agriculture. The LWCD will need to issue Schedules or Certificates of Compliance for all of those wishing to participate. This may trigger the need for additional staff funding to complete in a timely manner.
4. All other Livestock Operations- The remaining livestock operations that have not been inventoried due to location in WQMA or FPP participation will be the next priority. Of these operations, priority will be placed on dairy operations and operations in the following watersheds:
 - Pigeon River- This watershed has been widely neglected for BMP installation throughout the years due to lack of funding sources and has the second highest number of animal operations.
 - Walla Walla- This watershed ranked 1st in the Waupaca County Animal Waste Plan.
 - Lower Little Wolf- Despite a high volume of installed BMP's in the past due to a DNR Priority Watershed it still has the highest number of animal operations.

In addition to the above priorities any verified complaint received from the public through DNR, LWCD or other sources will be moved to the top of the priority inventory list.

In 2014 the new Waupaca County Farmland Preservation plan is expected to be certified and in place. At that time priorities 2 and 3 above are expected to switch places as a large amount of farmland located in the newly identified Exclusive Agricultural Zoning areas will need to be inventoried for compliance.

Inventory Tracking and Progress Evaluation

Waupaca County uses the Agricultural Inventory software developed by Outagamie County along with a GIS database to track the status and monitoring of all inventoried farms. It is the intention of Waupaca County to maintain detailed farm inventory records that can be cross referenced by tax parcel. The Transect Survey will provide the basis for measuring long-term reductions in soil loss and increased use of conservation tillage.

Determining Compliance

Ultimately all agricultural producers in Waupaca County will be reviewed for compliance with the Agricultural Performance Standards. The Waupaca County LWCD will perform records review and onsite evaluations based on the following criteria:

1. Evaluation at the request of landowners seeking participation in the Farmland Preservation Program.
2. Landowners seeking voluntary cost share funds through state or federal programs for BMP's related to the Agricultural Performance Standards.
3. Landowners or Priority Farms believed to be out of compliance based upon initial inventory results.
4. Formal complaints received by Waupaca County LWCD from other agencies or the public.

Notification

Compliance will be determined and documented by LWCD staff. Waupaca County will make every effort to communicate the compliance issues verbally or with a follow up visit to establish voluntary compliance. Any landowners that continue to be found to be out of compliance will be contacted and given the following information in writing:

- A statement explaining the compliance issues. (Notice of Noncompliance)
- The corrective measures needed to achieve compliance.
- A timeline for achieving compliance. (Schedule of Compliance)
- The status of eligibility for cost share assistance.
- Available funding sources and technical assistance.
- An explanation of technical standards and maintenance requirements.
- A signature page attached to the report indicating whether the landowner agrees or disagrees with the report.
- A copy of the Agricultural Performance Standards and Prohibitions.
- A notice of process and procedure for appeals stating: Any person aggrieved by a decision of the Waupaca County LWCD may file a written appeal of the decision with the Waupaca County LWCD within 30 days of the decision. A hearing with the Waupaca County Land and Water Conservation Committee will be scheduled within 60 days of the date of appeal.

Enforcement Process

A landowner that is out of compliance with the Agricultural Performance Standards and refuses technical and financial assistance from the Waupaca County LWCD will be referred to the Department of Natural Resources for enforcement action. They will receive a multi agency communication from DNR and Waupaca County LWCD. A copy of that correspondence will be forwarded to the Department of Agriculture Trade and Consumer Protection. Upon approval of this plan the LWCD will enter into a Memorandum of Understanding (MOU) with DNR to outline a formal process for assistance with enforcement action.

Cost Share Priority

Cost share priority for limited SWRM Grant funding will be determined by utilizing the Waupaca County Checklist / Ranking Sheet (See Appendix F). Any BMP's that qualify for Targeted Runoff Management Grants will be applied for in the next application cycle. EQIP funding will be utilized wherever available to cost share priority farms.

LWRM PLAN EVALUATION AND PRIORITY FARM STRATEGY REVIEW

To achieve successful implementation of this plan and its implementation strategies an annual review of the progress and extent of goals being achieved will be necessary. Through this process necessary revisions and adjustments to the plan goals, objectives and expected outcomes can be made. Evaluation of progress toward the goals and objectives set forth in this plan will involve the following:

Annual Review

The annual review will take place during the first month of each year. This review will be used to evaluate short-term, yearly progress. The LWCD will summarize financial data for funds appropriated in the implementation of the LWRM Plan. Items that will be reviewed will include but not be limited to:

- Evaluating benchmarked actions and anticipated outcomes
- Priority farm inventory progress
- BMP installation
- Sediment, phosphorus or nitrogen reduction
- Nutrient management plan acres
- Assessment of staffing hours spent on plan activities
- Total year end and cumulative payments for BMP installation
- Total funds encumbered in project cost share agreements
- Total of all other funds appropriated for the implementation of the Land and Water Resource Management Plan. This includes applicable staff and other related administrative support costs

Additionally, this information will be used by the LWCD and Land and Water

Conservation Committee (LWCC) to set workload priorities for the coming year.

Annual Reports

Annual accomplishment and work plan reports will be submitted by April 15th each year to DATCP to fulfill the requirements of ATCP 50.18. This will include both the financial report and the annual accomplishment report of LWRM activities. Annual reports to the county board will also be made that will include information from the annual review. The county board report will also include analysis of cost share funds spent in the county versus staff money utilized.

Project Reports

Project reports required for such things as Targeted Runoff Management Grants or Notice of Discharge (NOD's) will be completed as needed.

Long Term Evaluation

Long-term evaluation of land management changes will utilize two methods:

- The Transect Survey will be conducted each year. The Transect Survey will be the basis for measuring long-term reductions in soil loss and increased use of conservation tillage.
- Completion of the 5 year review process outlined by DATCP and the Land & Water Board in February of 2012. This review process will be necessary to outline the achievements of this plan and recognize the outcomes that are not being reached at the anticipated rate of this plan.

Water Quality Monitoring

Water resource monitoring requires extensive staff and monetary inputs over a long time frame to draw meaningful conclusions. This is not possible for a local unit of government with limited staff to achieve. Furthermore, water quality measurements are only appropriate at the watershed level. Water quality efforts in Waupaca County will be manifested in the Wolf River and the Winnebago pool lakes. Meaningful evaluation of those water bodies should be conducted by DNR staff. Citizen based monitoring of local lakes will also be encouraged.

CHAPTER 5 – GOALS, OBJECTIVES, AND ACTIONS OF PLAN IMPLEMENTATION

Both agricultural and non-agricultural resource concerns will be addressed by this plan, although with limited staff, agriculture will be the focus. ATCP 50 and NR 151 set the Agricultural Performance Standards will be used to address resource issues found during inventory of the priority farms. Non-agricultural resource concerns will be addressed as time permits and local ordinance requires.

The following is an outline of the implementation goals that will constitute the 2012-2021 Waupaca County LWRM Work Plan:

- a. Implementation of performance standards for farms
- b. Implementation of stormwater management and related urban standards
- c. Farmland Preservation conservation compliance
- d. Groundwater and/or Karst concerns
- e. Permit and ordinance administration
- f. Lake and stream protection (e.g. shoreline protected, invasive species management)
- g. Watershed protection (e.g. Phosphorus reduction/trading, TMDL, Nitrogen management)
- h. Program evaluation and monitoring
- i. Spending of state cost-share funds
- j. Forestry management
- k. Information and education strategy

Program Integration

Following each goal outline is a list of applicable programs that will be used by the LWCD and its partner agencies implement the goals of that section. Currently, numerous programs and projects at the county, state and federal level are available to complement the Land and Water Resource Management Plan. The LWCD will continue to encourage landowners to cooperate with other agencies and utilize these programs wherever applicable to meet the goals of this plan.

A. Implementation of Agricultural Performance Standards (NR 151) for Farms

Goal : Protect and improve the quality of surface water resources						
Objectives (Priority items bold)	Actions (Priority items bold)	Who (Lead agency first)	When	Staff & other costs (LCD costs only)	Anticipated annual outcomes	I & E tools
<p>Bring Waupaca County Farms into compliance with Agricultural Performance Standards.</p> <p>Reduce sediment and phosphorus delivery annually to waters of the basin.</p> <p>Increase acres under Nutrient Management Plan.</p>	Inventory FPP participant farms for conservation compliance	LWCD DATCP	Annually	Staff costs included in Goal C, Objective 1, Actions 1&3.	25-30 Compliance Schedules or Certificates issued.	LWCD Newsletter Landowner Mailings
	Inventory farms located in WQMA per plan priority for conservation compliance	LWCD	Annually	500 staff hours (\$17,500)	50 Compliance Schedules or Certificates issued, in conjunction with action #1	LWCD Newsletter UWEX Newsletter Landowner Mailings
	Install agricultural BMPs to reduce animal waste (phosphorous) runoff as identified by inventory.	LWCD NRCS DATCP DNR	Annually	2400 staff hours (\$84,000) \$500,000 cost-share	Design & implement 5 large agricultural waste systems. Spend 100% of cost-share funding available in the county	LWCD Newsletter Landowner Contacts Landowner Mailings NRCS Announcement
	Install conservation practices that reduce soil erosion & sediment delivery to surface waters	LWCD NRCS DATCP DNR	Annually	500 staff hours (\$17,500) \$50,000 cost-share	Design & implement 10 water quality BMP's. See reduction in transect survey results.	LWCD Website NRCS standards
	Promote conservation practices that reduce soil erosion & sediment delivery to surface waters	LWCD NRCS	Annually	100 staff hours (\$3,500)	Convert farmers to no-till/reduced till. Increase acres of residue management. Increase acres under cover crop	LWCD Website NRCS UWEX
	Conduct farmer training nutrient management workshops Cost Share 590 plans	LWCD DATCP NRCS UWEX	Annually	100 staff hours (\$3,500) \$25,000 Cost Share	25 farmers trained to write their own NM plans Increase NM plan acreage by 5% per year.	LWCD Newsletter UWEX Newsletter Landowner Contacts FVTC Classes
	Encourage and implement CRP/CREP enrollment of sensitive lands.	NRCS LWCD FSA	Annually	60 staff hours (\$2,100)	Establish 1 mile of vegetative buffer per year through CRP/CREP	NRCS Newsletters FSA Newsletters LWCD Newsletters Landowner Contacts
	Create and maintain GIS/tax parcel based record system to track inventory & accomplishments.	LWCD	Annually	300 staff hours (\$10,500)	Maintain credible geospatial record system.	N/A

Agricultural Performance Standards Program Integration

Waupaca County will take a lead role as staff resources permit in implementation of NR 151 Agricultural Performance Standards. Waupaca County has an excellent track record for providing technical assistance for installation of conservation practices. Agricultural producers are accustomed to utilizing the services of the entire conservation team including; LWCD, USDA-NRCS, USDA-FSA, UWEX, DNR and DATCP. The LWCD has had excellent cooperation with producers using a combination of voluntary and complaint driven processes. The following are a summary of the primary cost share programs used to implement the Table A goals and objectives.

Targeted Runoff Management (TRM) Grants

Targeted Runoff Management Grants are DNR grants that are applied for through the LWCD for farms or landowners in need of cost share funds to meet NR151 goals. The TRM grants are distributed through a statewide competitive grant application. The application is due around April 15th each year for construction of BMP's during the following two year period. Cost sharing is available for BMP's listed in NR 154. Historically TRM funds are applied for to fund the implementation of larger practices such as barnyard runoff and manure storage.

Targeted Runoff Management (TRM) grants are made available by the Department of Natural Resources to control nonpoint source pollution. The majority of TRM funds are to control pollution from farms. Governmental units submit project applications and use these funds to support cost-share agreements that are negotiated between the farmer and the governmental unit. In some cases, TRM funds are used by municipalities to control nonpoint pollution on municipally owned or operated lands.

TRM grants can be used to fund the construction of BMPs to control nonpoint source pollution. TRM grants can also fund design of BMPs as part of a construction project. Design services provided by the private sector are cost shared by the state at the same rate as the BMP installation. Reimbursement by the state for force account work performed by municipal employees may be no more than 5% of the total project reimbursement. The cost-share rate for TRM projects is up to 70% of eligible costs (90% in cases of economic hardship).

TRM projects fall into four categories. Applications compete for funding only with others within the same category

Large-scale TMDL Projects

Only agricultural projects are eligible. These projects are designed to reduce pollution to surface waters as needed to meet the goals of an EPA-approved Total Maximum Daily Load. Eligible costs include construction of structural best management practices, implementation of non-structural cropping practices and some staffing costs to plan and install management practices. Projects run 3-4 years in duration. Typical grants are approximately \$500,000 - \$1 million.

Large-scale non-TMDL Projects

Only agricultural projects are eligible. These projects are conducted outside TMDL areas. They focus on implementation of state agricultural performance standards and prohibitions and may be conducted in any area that has a qualifying plan. Protection and rehabilitation projects for both surface and ground water are eligible. Eligible costs include construction of structural best management practices, implementation of non-structural cropping practices and some staffing costs to plan and install management practices. Projects run 3-4 years in duration. Typical grants are approximately \$500,000 - \$1 million.

Small-scale TMDL Projects

Agricultural and urban nonpoint source control projects are eligible for funding. These projects are designed to reduce pollution to surface waters as needed to meet the goals of an EPA-approved Total Maximum Daily Load. Eligible costs are limited to construction of structural best management practices and acquisition of land or land rights if needed to support the practices. Projects run 2-3 years in duration. Grants are limited to \$150,000, and consequently are used to support a single best management practice.

Small-scale non-TMDL Projects

Only agricultural projects are eligible. These projects are conducted outside TMDL areas. They focus on implementation of state agricultural performance standards and prohibitions and may be conducted in any area to protect or rehabilitate surface or ground water. Projects run 2-3 years in duration. Grants are limited to \$150,000, and consequently are used to support a single best management practice.

TRM grants may not be used to fund the following:

- Projects to control pollution regulated under Wisconsin law as a point source. This includes activities to meet permit requirements for large livestock feeding operations regulated under CH. NR 243, Wis. Adm. Code, and municipal or industrial activities to meet permit requirements under CH. NR 216, Wis. Adm. Code.
- Construction site erosion control and post-construction structural BMPs for new development.
- Projects that are not water quality based (such as projects to solve drainage or flooding problems) or for dredging projects.

Soil and Water Resource Management (SWRM) Funds

Grant funding annually supplied to counties through the LWRM Plan process. This funding is generally used for smaller less expensive BMP's such as clean water diversion that are needed to meet the Agricultural Performance Standards. The funding

is quicker and easier to secure by landowners since there is no statewide competitive grant application process. Waupaca County uses a ranking sheet (see Appendix F) system to target the best application of the funding. SWRM funding also includes an allocation for “soft” practices such as Nutrient Management Planning. Cost share practices eligible are listed in Administrative Rule ATCP 50.

Environmental Quality Incentive Program (EQIP)

The Environmental Quality Incentives Program (EQIP) is a voluntary conservation program. It supports production agriculture and environmental quality as compatible goals. Through EQIP, farmers may receive financial and technical help with structural and management conservation practices on agricultural land. EQIP offers contracts for practice implementation from 1-10 years.

EQIP in Wisconsin offers financial assistance to help off-set the costs of eligible conservation practices. Incentive payments may also be made to encourage a farmer to adopt land management practices, such as nutrient management, manure management, integrated pest management, or wildlife habitat management. EQIP offers many practices geared to livestock operations of all types.

Any producer engaged in livestock or crop production on eligible land, or owner of eligible production land, may apply for EQIP. Eligible land includes cropland; rangeland; pasture; private non-industrial forestland; and other farm or ranch lands, as determined by the Secretary of Agriculture. Signup and details about eligible practices and payment rates are announced each year. NRCS will evaluate each application, with higher priorities given to applications that use cost-effective conservation practices, address local priorities, and provide the most environmental benefit.

Selected farmers need to develop a conservation plan for the acreage affected by the EQIP practices. Conservation practices must meet NRCS technical standards. Farmers may elect to use an approved third-party provider for technical assistance, if available. For more information, go to: <http://www.wi.nrcs.usda.gov>

The LWCD and NRCS have had a long standing partnership in Waupaca County. That partnership recognizes each agencies staff strengths and weaknesses. As part of that recognition the LWCD engineering staff has historically implemented most of the hard practices for the EQIP program. In turn NRCS staff is better suited to do the necessary conservation planning and some Nutrient Management plan review for the LWCD.

DNR NR 243 Notice of Discharge Program

The Department of Natural Resources (DNR) and the Department of Agriculture, Trade and Consumer Protection (DATCP) accept funding applications from governmental units to help owners and operators of livestock operations meet pollution control requirements imposed by the DNR. To be eligible for funding, the owner or operator of the livestock operation must receive a Notice of Discharge (NOD), or a Notice of Intent

to Issue a Notice of Discharge (NOI) from the DNR. These enforceable notices are issued by DNR under the authority of Chapter 283, Wis. Stats., and Chapter NR 243, Wis. Adm. Code.

Application deadlines are usually posted 3-4 times per year. Applications submitted by the deadline will be considered for funding. Unfunded applications will remain in consideration for one calendar year from the date of submittal. This means that projects considered for funding at any one time include new applications plus previously submitted applications that were not selected earlier for funding. Applications for NOI/NOD grants must be submitted by a governmental unit.

Conservation Reserve Program (CRP)

The Conservation Reserve Program was developed to assist landowners in voluntarily converting highly erodible and environmentally sensitive cropland from the production of annual crops to less intensive uses such as permanent grass, legumes, forbs, wildlife cover or trees. CRP normally has a 10 to 15 year lease payment. Sign-ups are ongoing and cover priority practices such as filter strips, riparian buffers, shelter belts, field windbreaks, grassed waterways and shallow water areas for wildlife. Sign-up applications are available at the Farm Service Agency. For information, go to: <http://www.fsa.usda.gov>

Conservation Reserve Enhanced Program (CREP)

The Conservation Reserve Enhanced Program was developed to assist landowners in voluntarily converting cropland along permanent waterways to grass, forbs, wildlife cover, and trees. Fifteen year or perpetual easements are available with payments based on soil type and length of agreement. CREP is a joint effort between the Federal, State and County governments to complement working agriculture and the protection of Wisconsin's soils and water resources.

CREP pays landowners to install filter strips along waterways or to return continually flooded fields to wetlands while leaving the remainder of the adjacent land in agricultural production. The size of land put into CREP is variable and can be a strip as narrow as 30 feet with no minimum acreage size. This allows farmers to put what land is needed into the program and leave the remainder for farming.

Financial incentives of CREP include cost sharing of conservation practice installation, up front incentive payments, and annual soil rental payments. CREP participants on average receive total combined state and federal payments per acre of \$2000 for the 15-year contracts and \$2,850 per acre for the perpetual conservation easements over the agreement timeframe.

Many different land cover and management practice options are available in the CREP program. The practice installed on a property depends on the desires of the landowner

and site factors. Some of the more commonly installed practices include filter strips, riparian buffers, and wetland restorations.

Managed Intensive Grazing (MIG)

All conservation partners in Waupaca County encourage the adoption of Managed Intensive Grazing. USDA-NRCS has MIG as a high priority for EQIP funding. The LWCD cooperates with Golden Sands Resource Conservation & Development to fund a multi-county grazing specialist to work with landowners in Waupaca County. Cost share funds are granted through the EQIP program.

Partners for Fish and Wildlife (USF&WS)

The goal of the Partners for Fish and Wildlife is the restoration of wetland, grasslands, and threatened and/or endangered species habitats. Landowners may be eligible if they have land that can be restored to wetland conditions, land that is degraded or former grasslands that can be restored, and land that can be restored to provide habitat for threatened and endangered species. There is up to 100% cost sharing available. To contact the USF&WS local office, phone (608) 742-7100.

Wetland Reserve Program (WRP)

The Wetland Reserve Program is a voluntary program established by USDA-NRCS to help landowners restore and protect wetlands on their property. To be eligible, land must have been drained for farming or pasture and possess the capability to be restored to natural wetland conditions. Land adjacent to restorable acreage is also eligible for cost sharing and must possess the capability to be restored to natural wetland conditions. Land adjacent to restorable acreage is also eligible if it contributes to wetland functions and values. NRCS teams up with Ducks Unlimited and Wisconsin Waterfowl Association on various projects. The participation level of each agency depends on the needs and characteristics of each project. For information, go to: <http://www.wi.nrcs.usda.gov>

B. Implementation of Stormwater Management Standards

Goal: Improve surface water quality by implementing erosion control and other stormwater management standards and practices.						
Objectives (Priority items bold)	Actions (Priority items bold)	Who (Lead agency first)	When	Staff & other costs (LCD costs only)	Anticipated annual outcomes	I & E tools
Ensure erosion control and storm water management standards are followed.	Acquire appropriate DNR permits (NOI) for BMP's when needed.	LWCD DNR	As Needed	40 staff hours (\$3500)	Submit all necessary storm water NOI's for large BMP's. Estimate 4 NOI's per year for large Ag. Waste systems.	DNR website.
	Assist Zoning in review or design of storm water BMP's for Shoreland Zoning	Zoning LWCD	As Needed.	30 staff hours (\$1,050)	Assist Zoning as requested. Currently about 4 occurrences per year.	Zoning Website
Encourage practices that treat stormwater as an asset.	Design and cost-share rain gardens for riparian owners.	LWCD NRCS UWEX	Annually	60 hours (\$2,100) \$2000 of County grant C/S	Design and implement 4 rain gardens per year.	LWCD Website LWCD contact

Stormwater Management Program Integration

Waupaca County does not have a specific ordinance that covers stormwater discharge. Stormwater discharge is covered under Wisconsin Administrative Codes NR 216 and NR 151. Further stormwater regulation may be applicable under Waupaca County's Shoreland Zoning. The LWCD is committed to following any applicable stormwater regulations during implementation of other programs. The following are a list of the most common stormwater related applications

Notice of Intent to Discharge

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. (07/31/08 MAL)

Waupaca Shore Land Zoning

Chapter 32 of Waupaca County Code of Ordinances (Shoreland Zoning) was passed by the county board in 1997. Areas of unincorporated land of Waupaca County that are regulated by the Waupaca County Shoreland Zoning Ordinance include:

- Any navigable lakes, ponds or flowages within 1000 feet of the Ordinary High Water Mark (OHWM)
- Any navigable river or stream within 300 feet of the OHWM or to the landward side of the flood plain, whichever is greater.
- Any wetland within the shoreland area or wetland that is contiguous with the shoreland as described above.

For more information see the Zoning Dept website at: www.co.waupaca.wi.us

C. Farmland Preservation Conservation Compliance

Goal: Conserve and protect productive agricultural lands in Waupaca County						
Objectives (Priority items bold)	Actions (Priority items bold)	Who (Lead agency first)	Date	Staff & other costs (LCD costs only)	Anticipated annual outcomes	I & E tools
Preserve productive farmland.	Monitor compliance on 50% of the existing FPP contracts, not due to expire.	LWCD DATCP	2012 & 2013	520 staff hours (\$18,200)	Compliance monitoring completed on 26 FPP participants	LWCD Newsletter Landowner Contacts DATCP Website
	Update the Waupaca County Farmland Preservation Program (FPP) plan	Planning/Zoning LWCD UWEX DATCP	2012-2013	400 staff hours (\$14,000)	FPP plan updated by Jan 1, 2014	LWCD Website LWCD Newsletter UWEX Newsletter DATCP Website
	Certify or schedule compliance for new FPP lands.	Planning/Zoning LWCD UWEX DATCP	2014-2021	1000 staff hours (\$40,000)	Issue 50 conservation certificates or schedules.	LWCD Newsletter Landowner Contacts DATCP Website
	Pursue Agricultural Enterprise Area (AEA) designation on prime farmlands in the county	LWCD Planning/Zoning UWEX DATCP	As Needed After 2013	200 staff hours (\$7,000)	Two AEA's designated in county (non-annual goal).	LWCD Website LWCD Newsletter UWEX Newsletter DATCP Website
Preserve productive farmland and forestland.	Acquire donated permanent conservation easements through Waupaca County CH. 47 ordinance.	LWCD	2012-2021	100 staff hours (\$3,500) LWCD has separate grant funding for C/S of related costs.	Acquire two easements annually.	LWCD Newsletter LWCD Website Landowner Contacts UWEX Newsletter
	Acquire PACE easements if program is resurrected under the Working Lands Initiative.	LWCD DATCP	2013-2021	200 staff hours (\$7,000)	Acquire two easements annually.	LWCD Newsletter Landowner Contacts DATCP Website

Farmland Preservation Program Integration

The Farmland Preservation Program was overhauled in 2009 to reflect new ideas in the goal to preserve Wisconsin's prime farmland. The Wisconsin Working Lands Initiative was signed into law in and is comprised of the following three programs:

- Farmland Preservation Program
- Agricultural Enterprise Area Program
- Purchase of Agricultural Conservation Easement Program

Waupaca County's current farmland preservation plan developed in 1981 is scheduled to be re-written by 2013. The original plan did not designate Exclusive Agricultural Zoning areas and FPP was therefore done on a contract basis. The following are the programs available to execute Table C goals and objectives.

Wisconsin Farmland Preservation Program (FPP)

The Wisconsin Working Lands Initiative provides landowners with an opportunity to claim farmland preservation tax credits through participation in the program. These tax credits are income tax credits that are applied against tax liability.

Tax credits

There is \$27 million available statewide annually to provide farmland preservation tax credits to landowners. Eligible landowners may collect one of the following per acre amounts by filing Schedule FC-A with their income tax return:

- \$5.00 for farmers with a farmland preservation agreement signed after July 1, 2009 and located in an agricultural enterprise area
- \$7.50 for farmers in an area zoned for farmland preservation
- \$10.00 for farmers in an area zoned for farmland preservation and in an agricultural enterprise area, with a farmland preservation agreement signed after July 1, 2009

There is no cap on the amount of credit that an individual can claim or on the amount of acreage eligible for a credit. However, if the total amount of claims exceeds \$27 million in a given year, the state is obligated to prorate the value of the credits available to individuals.

Eligibility Requirements

Acres claimed must be located in a farmland preservation area identified in a certified county farmland preservation plan. Eligible land includes agricultural land or permanent undeveloped natural resource areas or open space land that is:

1. In an area certified for farmland preservation zoning, and/or
2. Located in a designated agricultural enterprise area and under a farmland preservation agreement.
3. Claimants must have \$6,000 in gross farm revenue in the past year or \$18,000 in the past three years. Income from rental receipts of farm acres does not count

toward gross farm revenue. However, gross farm revenue produced by the renter on the landowner's farmland can be used to meet this eligibility requirement.

4. Claimants must be able to certify that all property taxes owed from the previous year have been paid.
5. Farmers claiming farmland preservation tax credits must certify on their tax form that they comply with state soil and water conservation standards. New claimants must also submit a certification of compliance with soil and water conservation standards that has been issued by the county land conservation committee.

Waupaca County is currently in a very unique time period with respect to Farmland Preservation. Waupaca County has no townships zoned for Exclusive Agriculture under the current FPP Plan so all of the participants have contracts. No new contracts have been entered into since June 30, 2009 per DATCP rules. Waupaca County is scheduled to re-write its FPP Plan by 2013. The revision will include Exclusive Agricultural Zoning and will open up the opportunity to participate in the program once again to landowners in the county in appropriate areas. On December 15, 2004, Waupaca County revised the soil and water conservation standards for the Farmland Preservation Program. The revision included adoption of NR 151 Agricultural Performance Standards. Existing contracts must now be brought into compliance if signed after December 15, 2004. As of January 2012 Waupaca County has 78 remaining FPP contracts. That number drops to 52 in 2013 and to 34 in 2014. After the plan revision is complete landowners with existing contracts will have the opportunity to convert to the new tax credit system. Waupaca's current goal is to immediately inventory those contracts that expire after 2012.

Agricultural Enterprise Areas (AEA's)

An "agricultural enterprise area" (AEA) is a new tool that can help individuals and communities meet locally identified agricultural preservation and agricultural development goals. An AEA is an area of contiguous land primarily in agricultural use that has been designated by the Department of Agriculture, Trade and Consumer Protection (DATCP) in response to a locally developed petition.

Benefits of AEA Designation

Eligible farmers in a designated area can enter into *voluntary* farmland preservation agreements with DATCP. Farmers with an agreement receive income tax credits in return for keeping their land in agricultural use for a minimum of 15 years. Tax credits available to farmers in an AEA are:

- \$5 per acre for land that is covered by a farmland preservation agreement, *or*
- \$10 per acre for land that is covered by a farmland preservation agreement *and* located in a certified farmland preservation zoning district.

An AEA may only be designated if it is identified by the local community as an area that is valuable for current and future agricultural use. This local input into the process is

important to achieve identified goals. Overall, the designation is a tool that can be used to protect the agricultural land base for continued production. In addition, the designation can help to promote investment in agriculture, agricultural infrastructure and agricultural-related businesses.

Purchase of Agricultural Conservation Easements (PACE)

The Working Lands Program establishes a new program to provide up to 50% of the cost of purchasing agricultural conservation easements, including transaction costs. Through the Purchase of Agricultural Conservation Easements (PACE) program, the state will provide funding to cooperating local governments or non-profit organizations to purchase easements from willing landowners. Land with an agricultural conservation easement cannot be developed for any purpose that would prevent its use for agriculture. The PACE program was suspended in 2011 due to state budget concerns.

Permanent protection of farmland and forested land was a prevalent theme in the development of the Waupaca County Comprehensive Plan. So much so that Waupaca County created its own donated conservation easement program (Chapter 47 of the County Code of Ordinances) as a sister program to PACE in 2009. These are easements held in perpetuity to help reduce development pressure on prime farm and forest lands. Eligibility for such easements follows preferred land use designations set forth by the Waupaca County Year 2030 Comprehensive Plan. This also qualifies Waupaca County to participate as a Cooperating Entity in DATCP's Purchase of Agricultural Conservation Easement (PACE) program. See Appendix E for Chapter 47 eligibility.

Waupaca County was very successful in the first year of PACE application. Six farms were accepted as finalists totaling over 3300 acres of protected farmland. There continues to be a prolific interest in permanent protection of farmland in Waupaca County.

D. Groundwater and/or Karst concerns

Goal: Protect Groundwater Quality and Quantity						
Objectives (Priority items bold)	Actions (Priority items bold)	Who (Lead agency first)	When	Staff & other costs (LCD costs only)	Anticipated annual outcomes	I & E tools
Seal/protect direct conduits to groundwater to prevent contamination.	Promote well decommissioning as a BMP.	UWEX LWCD NRCS	Annually	10 staff hours \$350	Increase awareness of well decommissioning.	UWEX Newsletter LWCD Newsletter
	Decommission wells as identified.	LWCD NRCS	As Needed	20 staff hours \$700 \$2,000 cost-share	4 wells decommissioned annually	Landowner Contact Well driller Contacts
Promote groundwater Awareness.	Conduct groundwater awareness classes in schools. "Groundwater Infiltrates"	RC&D LWCD	Annually	10 staff hours \$350	Conduct groundwater awareness classes in schools. RC&D conducts Groundwater Infiltrates.	RC&D Newsletter School Contacts.

Groundwater and Karst Area Concerns Program Integration

Waupaca County has localized areas of high nitrate ground water. Karst features are almost non-existent except in the far southeast corner of the county where some dolomite limestone exists. Due to the sporadic nature of the problem and the lack of specific BMP's to address a high nitrate well the LWCD does not spend valuable staff time attempting to remediate high nitrate wells. The following programs are the tools used to address groundwater concerns and protect groundwater quality.

Groundwater Education

Waupaca County LWCD present groundwater education and well pollution prevention in local grade schools each year. The LWCD also partners with UWEX and Golden Sands RC&D to teach groundwater education. RC&D coordinates the "Groundwater Infiltrates Waupaca County Schools" program with grant assistance from the LWCD. The LWCD believes the most cost effective way to improve groundwater quality is through education.

Well Abandonment

One of the few low cost yet highly effective ways to have an immediate impact on groundwater quality is to abandon old unused wells that act as direct conduits to potentially pollute local aquifers. Cost share is available through most of the programs outlined in Table A.

Manure Storage Abandonment

Many outdated and unused manure storage lagoons were built prior to the existence of county and state construction standards. The LWCD puts high priority on the abandonment of such structures. Cost share is available through most of the programs outlined in Table A.

E. Permit and Ordinance Administration

Goal: Effectively administer ordinances under LWCD jurisdiction, permits issued by LWCD and programs the LWCD is financially responsible to maintain and monitor.

Objectives (Priority items bold)	Actions (Priority items bold)	Who (Lead agency first)	When	Staff & other costs (LCD costs only)	Anticipated annual outcomes	I & E tools
Administer the Waupaca County manure storage ordinance.	Issue & review manure storage permits / Design structures.	LWCD NRCS DATCP	Ongoing	500 staff hours (\$17,500) C/S funds included in Goal A, Objective #1, Action 3	Issue permits & design structures for 6-8 applicants annually.	LWCD Website LWCD Newsletter UWEX Newsletter Landowner Contacts
	Review & Conduct spot checks of nutrient management plans.	LWCD NRCS DATCP	Annually	400 staff hours (\$14,000)	100 nutrient management plans reviewed.	Yearly letters to affected landowners.
	Educate landowners about Waupaca County M.S. Ordinance	LWCD NRCS	Annually	10 staff hours \$350	Pertinent article in 2 newsletters per year. No violation of code.	LWCD Website LWCD Newsletter UWEX Newsletter Landowner Contacts
Monitor county conservation easements per Chapter 47 of Waupaca County Ordinances.	Perform yearly spot checks of all accepted conservation easements.	LWCD	Annually	80 staff hours (\$2,800)	Monitor 10 (2012) to 30 (projected 2021) easements per year.	Landowner Contacts
Monitor PACE easements per DATCP & Waupaca County rules.	Perform yearly spot checks of all accepted conservation easements.	LWCD DATCP	Annually	80 staff hours (\$1,400)	Monitor 6 easements annually and provide reports to DATCP.	Landowner Contacts
Assist other Departments of Waupaca County Government.	Review Livestock Siting or erosion control issues for Planning and Zoning	Planning/Zoning LWCD	As Needed.	80 staff hours (\$2,800)	Make recommendations for necessary plans or situations.	N/A

Permit and Ordinance Administration Program Integration

The LWCD is tasked with several forms of ordinance administration and inspection for existing programs. The following provide some detail of that administrative responsibility.

Waupaca County Manure Storage Code

In June 2005, Waupaca County repealed and recreated Chapter 10, Section 10.50 of the Waupaca County Code of Ordinances relating to manure storage and land spreading of manure. The purpose of this ordinance is to regulate design, construction, installation, operation, closure and use of manure storage facilities in order to prevent water pollution and protect the health of Waupaca County residents and to implement the Agricultural Performance Standards. Waupaca County charges a fee to permit construction or alteration of manure storage facilities.

Livestock Siting

Chapter 34 of the Waupaca County Code of Ordinances passed in May of 2010 references the need for a Conditional Use Permit for new or expanding livestock facilities over 500 animal units.

The Livestock Facility Siting Law consists of a state statute (s. 93.90) and rule (ATCP 51) that establish state standards and procedures local governments must use if they choose to require conditional use or other permits for siting new and expanded livestock operations. The siting statute affects local ordinances that require conditional use or other similar permits, but does not affect other ordinances such as shoreland and flood plain zoning. The statute limits the exclusion of livestock facilities from agricultural zoning districts. It also created the Livestock Facility Siting Review Board to hear appeals concerning local permit decisions.

The law is implemented by local governments. Provisions of the siting law can be incorporated into local ordinance at any time. ATCP 51 became effective on May 1, 2006 and existing ordinances had to be revised by November 1, 2006 to be enforceable, or to keep a permit threshold lower than 500 animal units. Local governments must use the application worksheets in the rule to determine if a proposed facility meets these standards:

- Property line and road setbacks
- Management and training plans
- Odor management
- Nutrient management
- Manure storage facilities
- Runoff management

Conservation Easements

Conservation easements held by Waupaca County have yearly review and inspection requirements mandated by Chapter 47 of Waupaca County Code of Ordinances or through grant contract agreements between Waupaca County and DATCP for PACE easements. Detailed inspection reports are filed for each property that Waupaca County holds a conservation easement on. These reports are also maintained to be in compliance with the IRS income tax codes.

Non-Metallic Mining Reclamation

In July 2001, Waupaca County passed Chapter 43 of the County Code of Ordinances: Non-Metallic Mining Reclamation Ordinance. The goal of the ordinance is to assure lands opened to mining are reclaimed to near pre-mining conditions or to a use that is environmentally friendly and safe. Waupaca County currently has 45 active mines that have approved reclamation plans on them and 10 mines that are exempt. Any new mine, greater than an acre in size will fall under the reclamation standards in the ordinance. The ordinance is administered by Waupaca County Zoning and the East Central Regional Planning Commission (ECRPC).

F. Lake and Stream Protection (shoreline protection & invasive species management)

Goal: Maintain, protect and improve Waupaca County surface water resources						
Objectives (Priority items bold)	Actions (Priority items bold)	Who (Lead agency first)	When	Staff & other costs (LCD costs only)	Anticipated annual outcomes	I & E tools
Work with landowners, associations and agencies to identify and eliminate Aquatic Invasive Species. Minimize soil erosion and protect water quality.	Evaluate, identify and eradicate Aquatic Invasive Species per Waupaca County/Golden Sands RC&D plan.	RC&D LWCD Lakes associations Sanitary districts DNR	Annually	100 staff hours (\$3,500)	Identify and eradicate any AIS found. Create citizen involvement in AIS projects.	LWCD Newsletter Lake association meetings. RC&D contacts.
	Provide technical assistance and cost-share funding for shore land restoration, erosion control BMP's.	LWCD DNR NRCS	Annually after 2013	100 staff hours (\$3,500) C/S included in Objective A	Install 4 shoreline protection BMPs to reduce erosion or restore habitat annually after 2013.	LWCD Website NRCS programs LWCD Newsletter UWEX Newsletter Landowner Contacts
	Inventory lake or river shorelines using GPS technology.	LWCD RC&D	Annually after 2013	80 staff hours (\$2,800)	Complete inventory of 4-6 lakes. This outcome may be accelerated for efficiency.	LWCD Newsletter Lake association meetings.

Lake and Stream Protection Program Integration

Waupaca County is a transition type county that has a diverse landscape that includes large areas of production agriculture as well as hundreds of lakes and miles of streams that are integral to the county's tourism industry. Historically the LWCD has probably not focused enough on the needs of the riparian landowners and their resource concerns. Recently the LWCD has made an effort to regain a foothold in the riparian community to make technical support and resources available. The following are some of the programs being used to accomplish the goals and objectives of Table F.

Aquatic & Invasive Species Grant Program

Waupaca County has many valuable aquatic resources, and with that comes a responsibility to protect those resources from threats of all origins. In the last few decades, aquatic invasive species (AIS) have been becoming a growing threat to our lakes and streams. AIS have the potential to disrupt the natural ecosystem and have serious consequences to water quality, biology, and recreational use of lakes and streams. Efforts should be made to protect these systems by using proactive strategies that save time and money, rather than reactive strategies that take up limited time and money. Since 2004, the Wisconsin Department of Natural Resources (WDNR) has instituted grant programs to help fund research, preventative measures, control methods, and information and educational campaigns.

Several Waupaca County lakes already have AIS which can be controlled by appropriate removal methods. Combining control methods with proactive preventative measures such as information and educational campaigns, (for example, the Clean Boats Clean Waters volunteer watercraft inspection program) the spread of these AIS can be slowed or even eliminated. Certain AIS such as Eurasian water milfoil, curly-leaf pondweed, and purple loosestrife can be controlled via manual, mechanical, chemical, or biological means. Any effort to help fund these control methods should be pursued. The following water bodies in Waupaca County have documented priority AIS, including Eurasian water milfoil, curly-leaf pondweed, rusty crayfish, and zebra mussels. Many of the AIS in these water bodies have been found as recently as last year. Any funding to help control existing AIS, prevent infestation of additional AIS, and prevent the spread to other water bodies should be a priority:

Bailey Lake	Kinney Lake	School Section Lake
Brekke Lake	Long Lake	Shadow Lake
Cedar Lake	Manawa Millpond	Silver Lake
Crystal River	Mirror Lake	Stratton Lake
Embarrass River	Ogdensburg Pond	Waupaca Chain of Lakes
Flume Creek	Partridge Crop Lake	Waupaca River
Hatch Lake	Partridge Lake	Weyauwega Lake
Iola Lake	Pigeon Lake	White Lake

Other surface water bodies may be at risk due to their proximity to infected waters or high recreational use, and those should be prepared to address this issue. As one preventative measure, the WDNR has begun posting all boat landings with AIS information in Waupaca County. However, other WDNR programs such as the Clean Boats Clean Waters Program, and the Purple Loosestrife Biological Control Project should also be pursued by citizens.

The following lakes should pursue, or continue pursuing participation in the Clean Boats Clean Waters program to contain AIS within their lake, or to prevent AIS from getting to their lake:

Cedar Lake	Kinney Lake	Bailey Lake	Brekke Lake
Partridge Lake	Manawa Millpond	Shadow Lake	Silver Lake
Hatch Lake	Big Falls Millpond	Stratton Lake	Waupaca Chain of Lakes

Waupaca County currently participates in the five-county AIS program run through Golden Sands Resource Conservation & Development Council, Inc. (RC&D), based in Stevens Point. Waupaca County shares the services of Golden Sands RC&D staff with Portage, Wood, Waushara, and Marathon Counties. This program is funded through an AIS grant from the Wisconsin Department of Natural Resources, and provides free educational workshops, newsletter articles, AIS lake surveys, technical assistance, and AIS control assistance for Waupaca County residents. A database with contact information for lake residents, lake groups, and other interested parties is being developed for Waupaca County to encourage involvement between lakes. Many lakes have taken advantage of all program opportunities in the past, and have also received Citizen Lake Monitoring Network (CLMN) trainings, and Clean Boats Clean Water (CBCW) trainings.

CLMN workshops are about 3 hours long, and consist of educational presentations to the audience about the biology of AIS, how they got here, and what can be done to reduce their populations and prevent their spread. Participants are trained to identify these species, along with native look-alikes, using live samples whenever possible. This AIS identification technique enables the participants to feel comfortable monitoring for them. The CLMN program gives participants a chance to be proactive in management by finding AIS early. Early AIS discoveries are essential, because they often result in minimized costs and efforts for control, as well as the increased likelihood of its eradication. Well-established populations of AIS are on the other hand, very expensive to manage, and often result in control instead of eradication of AIS.

CBCW workshops train participants on the WDNR's volunteer watercraft inspection program. They learn how to run an effective volunteer program, how to communicate the Clean Boats, Clean Waters message to boaters, and how to report a violation if someone fails to obey the laws regarding transport of aquatic vegetation or proper cleaning of a boat and equipment between lakes.

Waupaca County Land and Water Conservation Department are key players in the

success of AIS control and education in Waupaca County. By providing technical advice, assistance with education and control, surveying, and mapping, the County works together with Golden Sands RC&D to ensure the quality of the watershed is maintained or improved.

Lake and Shoreline Inventory

Shoreline areas provide critical habitat for aquatic and terrestrial life and can either be a source of water quality problems or can improve the water quality of runoff from the nearby landscape. Many of Waupaca County's lakes shorelines are privately owned and heavily developed. However, if managed caringly, these lands could provide a healthy buffer surrounding the lakes to maintain water quality and form a linear environmental corridor for animal movement. Portions of Waupaca County's lakes are also undeveloped and in a natural state. Opportunities for protection and thoughtful management could preserve the natural scenic beauty of these segments. An effort to compile ecological and man-made characteristics of shoreline areas will help LWCD efforts in identifying, conserving and protecting these special resources. The identification, inventorying, and mapping of shoreline vegetation, natural features, and water quality buffers offer a means to plan for and manage the unique opportunities and special characteristics that surround the Waupaca County lakes.

Analyses conducted for lake littoral and riparian areas will reveal spatial patterns important to each lake's water quality, ecological health, and aesthetic integrity. Field surveys using GPS technology will identify the precise location of key habitat regions that are important to fish, wildlife and other organisms. The inventory will consist of a modified version of the EPA's shoreland assessment tool in the National Lakes Assessment. Additionally, geo-tagged photographs will compliment the shoreline inventory to help document the current status of buildings, foliage, docks, beaches, and development within close proximity to the shoreline. Such images and analyses provide resource professionals, citizens, and policymakers with a historic geospatial record for the implementation, tracking, and improvements to lake management planning. Geographic Information Systems will be utilized to summarize shoreland characteristics and map areas where intervention may be warranted. Intervention may be in the form of education and/or technical assistance to landowners of affected areas.

Waupaca County Rain Garden Program

A rain garden is a planted depression that allows rainwater runoff from impervious urban areas like roofs, driveways, walkways, parking lots, and compacted lawn areas the opportunity to be absorbed. This reduces rain runoff by allowing stormwater to soak into the ground (as opposed to flowing into storm drains and surface waters which causes erosion, water pollution, flooding, and diminished groundwater). The purpose of a rain garden is to improve water quality in nearby bodies of water. Rain gardens can cut down on the amount of pollution reaching creeks and streams by up to 30%. Waupaca County has cost share funds available, at a limited rate, to design and

implement Rain Gardens in riparian residential areas. Contact the LWCD for more information.

Lake Planning and Protection Grant Program

Grant awards may fund up to 75 percent of project costs (maximum grant amount \$200,000). Because of the size, complexity, and technical nature of many projects, a pre-application meeting with the DNR is highly recommended, especially if the project requires plan or permit approvals. This will ensure the application will be complete and can be evaluated and considered for funding. Eligible projects include:

- Purchase of land or conservation easements that will significantly contribute to the protection or improvement of the natural ecosystem and water quality of a lake.
- Restoration of wetlands and shorelands that will protect a lake's water quality or its natural ecosystem (these grants are limited to \$100,000). Special wetland incentive grants of up to \$10,000 are eligible for 100 percent state funding if the project is identified in the sponsor's comprehensive land use plan.
- Development of local regulations or ordinances to protect lakes and the education activities necessary for them to be implemented (these grants are limited to \$50,000)
- Lake management plan implementation projects recommended in a plan and approved by DNR. These projects may include watershed management projects, lake restoration, diagnostic feasibility studies, or any other projects that will protect or improve lakes. Sponsors should submit a copy of their lake management plan and the recommendation(s) it wants to fund for DNR approval at least two months in advance of the May 1 deadline. Plans must have been officially adopted by the sponsor and made available for public comment prior to submittal. The DNR will review the plan and advise the sponsor on the project's eligibility and development of a lake protection grant application for its implementation.

The following projects are not eligible for funding through Lake Protection and Classification grants:

- Dam repair, operation or removal.
- Purchase of property on which a dam is located.
- Water safety patrols.
- Dredging.
- Design, installation, operation or maintenance of sanitary sewers, or septic systems.
- Most chemical treatments or mechanical harvesting of aquatic plants.
- Maintenance and operation of equipment and facilities.
- Water safety patrols, as defined in s. 30.79 (1) (b), Wis. Stats.

Wisconsin Lakes Management Program

The Wisconsin Lakes Management Program is a cooperative program between the Wisconsin DNR, UW-Extension, the Wisconsin Association of Lakes (WAL), and lake organizations to assist management and protection of their lakes. The Wisconsin Lakes Management Program provides technical assistance, information and education to lake groups and lake residents, as well as planning, protection, and implementation grants to qualified lakes organizations and local units of government.

Waupaca County Lake and Impoundment Draw Downs

Many impoundments exist in Central Wisconsin and most were once millponds created between 100 to 150 years ago. In that time they have largely filled in with organic sediment from multiple sources including:

1. Inlet streams / rivers depositing sediment.
2. Decomposition of organic materials such as aquatic plants.
3. Shoreline erosion and deposition.

Conditions have gotten bad enough in some systems that public recreation is largely limited to spring, fall and winter use as the aquatic plant densities are too abundant to allow for summer use. In addition, systems that at one time had water depths averaging 10 feet or more now, in many cases, have maximum depths less than 5 feet. Consequently, many of these millponds now support a degraded fishery and in some cases experience winter and/or summer fish kills. For example, the Ogdensburg Millpond suffered a summer fish kill in 2010 due to low oxygen levels.

Management options include mechanical dredging and draw downs. Mechanical dredging in most cases is too cost prohibitive to be effective. Most communities and lake organizations do not have sufficient funds available to pursue dredging. As a result, dredging really is not a realistic option for primary management. However, in certain cases, there could be some use for dredging to be used at a smaller scale in combination with draw-downs.

Over the last ten years, draw-downs have been tried on multiple local millponds with successful results. Typical management objectives for draw down's are to reduce aquatic plant density (specifically invasive species) and increase overall lake depth. Local millponds that have conducted draw downs recently include Marion Millpond, in 2007-2010, as well as Iola, Weyauwega and Ogdensburg in 2011.

The timing, duration and level of draw downs all factor into the degree of success achieved for the specific management action. Generally speaking, results have shown that to increase lake depth it is best to conduct draw downs during summer months and to control aquatic plants it is best to draw-down for the winter months. With that said, measurable improvements have been achieved for both depth and aquatic plant control regardless of the time of year the draw down took place. The Department of Natural Resources (DNR) usually advises that draw downs be conducted for at least one

consecutive year to ensure that maximum benefits to both objectives are achieved.

The level of draw down's that have been attempted on area lakes can be classed into two categories, partial draw down and whole lake draw down. Partial draw downs typically are done at a vertical level of 4 to 6 feet. One benefit of partial draw downs is that the impact to the fishery is normally small to not measurable. Conversely, whole lake draw downs can and do have a significant impact to the fishery and full recover takes from 3-5 years.

Marion Millpond conducted two whole lake draw downs with one occurring in the winter of 2007-2008 and the other for one entire year in 2009-2010. EWM populations went from 80 acres to less than 5 acres and CLP went from 40 acres to less than 10 acres in aerial coverage. Improvement in lake depth is obvious but this was not studied specifically pre and post the draw down events.

Benefits:

- Improves lake depth
- Decreases aquatic plant densities for both native and invasive plant species
- Encourages the establishment of emergent plant beds (bulrush etc.)
- Improves spawning substrate for multiple fish species
- Increase the diversity of the aquatic plant community
- Exports significant amounts of nutrients out of the lake system (phosphorus etc.).
- Improves recreational opportunities post draw down.
- Improves lake habitat post-draw down
- Can improve property values.

Disadvantages:

- Can be expensive if hydro-electric power is being generated (reimbursement of lost revenue).
- Temporary loss of recreation / use of the lake.
- Short-term invasion of lake-bed by terrestrial plants (nuisance).
- A time commitment is necessary from members of lake districts and associations.

Lastly it should be noted that draw downs are voluntary actions taken by lake groups working in concert with the DNR and LWCD. The LWCD staff provides integral support to DNR in this process by:

- Meeting with lake groups to help sell this management option.
- Help design and conduct studies to evaluate the efficiency of this management technique.
- Improving communication between Landowners and DNR.

G. Watershed protection (e.g. Phosphorus reduction/trading, TMDL, Nitrogen management)

Watershed protection, i.e., phosphorus reduction/trading, TMDL implementation, nitrogen management, and other adaptive management strategies, are currently not projected for our staff and programs, but could be a larger part of our programs in five years. While not priority actions, we will remain open to the opportunity to participate in these programs if the opportunity arises.

Goal: Establishment of point/nonpoint nutrient trading program in Waupaca County in the future.						
Objectives	Actions	Who (Lead agency first)	When	Staff & other costs (LCD costs only)	Anticipated annual outcomes	I & E tools
Establish a pilot nutrient trading program that would make additional cost share funds available for NPS pollution abatement. NOTE: It is likely the metropolitan portion of this type of partnership would be further down the watershed/basin than Waupaca County municipalities.	Attend meetings among prospective trading partners	DNR LWCD MS4 group Metro Sewer Local Farmers	Annually	16 staff hours (\$560)	Attend 1-2 meetings within basin regarding TMDL's or nutrient trading.	DNR Newspaper articles
	Coordinate between potential trading partners and DNR/EPA to establish parameters for verifiable reductions	DNR LWCD MS4 group Metro Sewer	As needed	None projected at this time	Partner agencies determine how to verify pollutant reductions and implement program.	DNR Newspaper articles
	Select pilot projects for nutrient trading	DNR LWCD MS4 group Metro Sewer Local Farmers	As needed	None projected at this time	Select a Waupaca County pilot site.	LWCD Newsletter DNR Partners Landowner contacts

H. Program Evaluation and Monitoring

Goal: Demonstrate program effectiveness						
Objectives (Priority items bold)	Actions (Priority items bold)	Who (Lead agency first)	When	Staff & other costs (LCD costs only)	Anticipated annual outcomes	I & E tools
Monitor county-wide erosion potential	Conduct county-wide transect survey	LWCD	Annually	100 staff hours (\$3,500)	Transect survey completed. Data trend achieved.	N/A
Monitor all Ch. 47 and PACE conservation easements.	Perform yearly spot checks of all accepted conservation easements.	LWCD	Annually	See Permit & Ordinance Administration Objective #1, Actions #2&3.		Landowner Contacts
Assess water quality and AIS presence.	Support citizen-based monitoring	RC&D LWCD Lake groups DNR UWSP	Annually	20 staff hours (\$700)	Better informed citizens. Resource monitoring.	RC&D newsletter RC&D reports LWCD newsletter
Inform County Board and citizens of LWCD progress	Report to County Board	LWCD	Annually	10 hours (\$3500)	Support for department's programs	LWCD Newsletter Annual report
Inform DATCP of progress	DATCP report	LWCD	Annually	5 hours (\$175)	Support for department's programs	LWCD Newsletter Annual report
Inform DNR of progress	TRM reports, Wildlife program reports	LWCD	Annually	20 hours (\$700)	Support for department's programs	LWCD Newsletter Annual report

Transect Survey

Waupaca County has used the transect survey as a method of tracking conservation tillage and erosion control performance each year since 1999. Due to the challenges of creating a more detailed erosion control model, the LWCD will continue to use the transect survey as a measuring tool for performance of cropland erosion control.

Conservation Easements

See page 88.

Annual Review

The annual review will take place during the first month of each year. This review will be used to evaluate short-term, yearly progress. The LWCD will summarize financial data for funds appropriated in the implementation of the LWRM Plan. Items that will be reviewed will include but not be limited to:

- Evaluating benchmarked actions and anticipated outcomes
- Priority farm inventory progress
- BMP installation
- Sediment, phosphorus or nitrogen reduction
- Nutrient management plan acres
- Assessment of staffing hours spent on plan activities
- Total year end and cumulative payments for BMP installation
- Total funds encumbered in project cost share agreements
- Total of all other funds appropriated for the implementation of the Land and Water Resource Management Plan. This includes applicable staff and other related administrative support costs

Additionally, this information will be used by the Land and Water Conservation Department and Committee to set workload priorities for the coming year.

Annual Reports

Annual accomplishment and work plan reports will be submitted by April 15th each year to DATCP to fulfill the requirements of ATCP 50.18. This will include both the financial report and the annual accomplishment report of LWRM activities. Annual reports to the county board will also be made that will include information from the annual review. The county board report will also include analysis of cost share funds spent in the county versus staff money utilized.

Project Reports

Project reports required for such things as Targeted Runoff Management Grants or Notice of Discharge (NOD's) will be completed as needed.

I. Spending and Acquisition of State Cost-Share Funds

Goal: Spend local & state cost-share & staffing dollars effectively.						
Objectives (Priority items bold)	Actions (Priority items bold)	Who (Lead agency in bold)	When	Staff & other costs (LCD costs only)	Anticipated annual outcomes	I & E tools
Prioritize cost-share dollars for high-return practices.	Calculate practice effectiveness prior to offering cost-share.	LWCD NRCS	Continually	100 staff hours (\$3,500)	Cost-share is spent to maximize water quality improvements.	N/A
Use LWRM plan as tool to acquire additional cost-share and staffing dollars from other sources.	Apply for DNR TRM grants based on LWRM plan priorities and inventory.	LWCD DNR	Annually	100 staff hours (\$3,500)	Grants worth \$300,000 are awarded to further attain the LWCD's goals.	LWCD Website DATCP Website DNR Website
	Apply for NRCS EQIP funding based on LWRM plan priorities and inventory.	NRCS LWCD	Annually	150 staff hours (\$5,250)	Grants worth \$200,000 are awarded to further attain the NRCS/LWCD's goals.	NRCS Bulletins LWCD Newsletter
	Investigate TMDL, Nutrient Trading or other potential funding opportunities for Waupaca County.	LWCD	Annually	40 hours (\$1,400)	Acquire new staff/cost-share funding sources when possible.	N/A
Maintain appropriate staff to fulfill LWRM Plan objectives.	Secure additional staffing grant funds whenever possible. Increase partnerships when possible.	LWCD NRCS DATCP DNR RC&D	Annually	40 hours (\$1,400)	LWCD staff is not further reduced. Acquire additional county budget for BMP's.	N/A

See Table A and Table G for Program Integration of state and local cost share funds.

J. Forestry & Wildlife Management

Goal: Improve forest management on private lands in Waupaca County						
Objectives (Priority items bold)	Actions (Priority items bold)	Who (Lead agency in bold)	When	Staff & other costs (LCD costs only)	Anticipated annual outcomes	I & E tools
Inform public of resources available for forest management.	Educate landowners about forest management.	DNR LWCD	Annually	10 staff hours (\$3500)	Increase awareness of forestry programs	LWCD website DNR Website Forestry facts MFL Application WVOA chapter
Provide tools for woodland management and reforestation.	Conduct county wide tree sale.	LWCD	Annually	160 staff hours (\$5,600)	Sell 30,000 trees to county residents. Teach them to plant trees.	LWCD Website Local radio Mail order forms
Provide support for wildlife-related programs.	Administer Wildlife Damage Abatement Claims Program	LWCD DNR	Annually	100 staff hours (\$3,500) \$5000 Cost-Share	10 program participants	LWCD Website DNR Website
	Administer deer donation program	Deer donors, LWCD, local meat processors, DNR	Annually	100 staff hours (\$3,500)	5,000 pounds venison distributed	LWCD Website
Use forestry BMP's for Wind Erosion Control	Install Windbreaks to control erosion	Central WI Windshed Partnership (CWWP) LWCD	As Needed	Staff hours would be incurred by CWWP staff	Install Windbreaks as needed.	CWWP Website

Forestry and Wildlife Program Integration

Many of the services available to improve forest management on private lands are administered by agencies other than the LWCD. The LWCD does aggressively promote forestry management programs during landowner contacts both in the office and while in the field. The LWCD is tasked with administering wildlife damage claims on agricultural lands within the county. The following are the programs available to help landowners with private forest and wildlife management from Table J.

Wildlife Damage Abatement and Claims Program

The Wildlife Damage Abatement and Claims Program provides abatement and claims assistance to landowners receiving wildlife damage. The damage must be caused by deer, bear, geese, or turkeys to commercial seedlings, orchard trees, agricultural crops, nursery stock, apiaries, or livestock. Landowners are eligible for abatement practices such as fencing, shooting permits, cannons, etc. and monetary claims. Waupaca County LWCD administers this program in-house.

Managed Forest Law (MFL)

The goal of the Managed Forest Law (MFL) program is to encourage long-term, sound forest management. MFL is a tax incentive program of industrial and non-industrial private woodland owners, who manage their woodlands of 10 acres or more for forest products while also managing for water quality protection, wildlife habitat and potentially public recreation. In return for following an approved management plan, property taxes are set at a lower rate than normal. It was enacted in 1985 and replaced the Woodland Tax Law and the Forest Crop Law. It is the only forest tax law that is open to enrollment. Land enrolled in the MFL program must be managed according to a plan agreed to by the landowner.

Central Wisconsin Windshed Partners (CWWP)

The Central Wisconsin Windshed Partners (CWWP) is a cooperative venture of the Wisconsin Potato and Vegetable Growers Association; the vegetable processing industry; the Land Conservation Committees of Adams, Juneau, Portage, Waushara, Wood, and working with Marathon, Marquette, and Waupaca Counties; the Wisconsin Department of Agriculture, Trade, and Consumer Protection; the Golden Sands Resource Conservation and Development Area; the Natural Resources Conservation Service; the University of Wisconsin; and the University of Wisconsin Cooperative Extension Service.

Based out of the Ag Research Station in Hancock, the CWWP seeks to assist people with wind erosion and snow control, landscaping, prairie grass seeding, and livestock protection through three primary activities:

- Offering a full-service windbreak establishment and maintenance program. The maintenance program includes mowing, hand weeding, and replacing

- dead plants for the first three years of the plants establishment
- Conducting on-farm conservation tillage demonstrations
- Providing education and information to people through their experiences in these areas. Cost sharing is available to those who participate in our program and meet qualifications

Gypsy Moth Suppression Program

The Gypsy Moth Suppression Program is a cooperative venture between Waupaca County and DNR established to reduce Gypsy Moth populations. Yearly populations are monitored and evaluated. Environmentally safe chemical spraying is accomplished on a needs basis. Landowners are eligible for 50% reimbursement on the spraying costs.

Stewardship Incentive Program (SIP)

The Stewardship Incentive Program (SIP) was developed to stimulate enhanced management of forests by cost sharing approved management practices. SIP provides cost share funding of up to 75% for practices that provide soil and water protection. The SIP program applies to non-industrial private forests of 10 acres or more.

Wildlife Habitat Incentive Program (WHIP)

The purpose is to develop or improve fish and wildlife habitats on privately owned land. Almost any type of land is eligible, including agricultural and non-agricultural land, wood lots, pastures, and stream banks. Some practices installed include seeding to native grasses, in-stream structures, etc. with cost sharing provided for restoration costs. For more information go to: <http://www.wi.nrcs.usda.gov>

Wisconsin Forest Landowner Grant Program (WFLGP)

This program is designed to assist private landowners protecting and enhancing their forested lands, prairies and waters. This program allows qualified landowners to be reimbursed up to 65% of the cost of eligible practices. To apply, applicants must be interested in being good stewards of their natural resources and own at least 10 acres of contiguous acres of non-industrial private forest, but not more than 500 acres. Landowners need a Forest Stewardship Plan for their land or need to be applying to have one prepared in order to qualify. Waupaca County LWCD participates with Wisconsin Land and Water Conservation Association (WLWCA) for technical assistance in this program. For more information go to <http://dnr.wi.gov/topic/ForestLandowners/documents/WFLGPfactsheet.pdf>

K. Information and Education Strategy

Goal: Inform and Educate the public about the mission, goals and objectives of the Waupaca County LWCD.					
Objectives (Priority items bold)	Actions (Priority items bold)	Who (Lead agency first)	When	Staff & other costs (LCD costs only)	Anticipated annual outcomes
Educate landowners to Ag. Performance Standards and Prohibitions, County Ordinances and cost share opportunities. Meet the I&E goals of	Mail LWCD newsletter	LWCD NRCS UWEX	Bi-Annually	40 staff hours (\$1,400) \$1,000 Budget	Inform farmers and landowners of LWCD actions, Ag performance standards & available programs.
	Conduct Conservation Banquet and award program.	LWCD NRCS DNR	Annually	60 staff hours (\$2,100) \$1,000 Budget	Promote local conservation successes.
	Speak at FVTC “Cow College” sessions.	LWCD NRCS	Bi-Annually	20 staff hours (\$700)	Inform dairy farmers of LWCD actions, Ag performance standards & available programs.
	Conservation Easement Recognition Field Day	LWCD UWEX	Annually	40 staff hours (\$1,400)	Recognize and promote conservation easements to landowners.
Educate school children to conservation.	Conduct county wide 5th grade conservation field day	RC&D LWCD NRCS DNR	Annually	40 staff hours (\$1,400) \$2000 Cost	Expose 400 5th grade students to hands on conservation activities.
	Conduct WLWCA speaking contest for grade school children.	LWCD WLWCA	Annually	30 staff hours (\$1,050)	Educate youth to conservation and public speaking techniques.
Report accomplishments to other groups and associations.	Report LWCD activities to county board.	LWCD	Annually	10 staff hours (\$350)	Inform County board of all activities and accomplishments. Toot the LWCD horn.
	Attend local lake association or river group meetings.	LWCD	Annually	10 staff hours (\$350)	Inform at least 2 groups per year of LWCD activities and program availability.
	Report water quality efforts at RC&D meetings	LWCD RC&D	Bi-monthly	30 staff hours (\$1,050)	Inform RC&D of LWCD’s accomplishments & activities. Strengthen partnership.

Information and Education Strategy

Waupaca County has a well-documented history of supporting a comprehensive information and education program. The University of Wisconsin-Extension has a strong presence in Waupaca County with five educators. In the past, UWEX has implemented comprehensive groundwater education programs including “Water Wise”. In addition, the Waupaca County Water Quality Program places great emphasis on education.

Waupaca County resource managers have an outstanding track record of excellent information and education activities. They are well aware of what types of programs are most effective and will continue to utilize proven activities. As there will probably be no new staff time available during the term of this plan, the information and education activities proposed would be those that have proven effective for Waupaca County landowners.

Generally speaking, there are three barriers that prevent landowners from adopting soil and water conservation Best Management Practices:

- Knowledge - not having the necessary information to make an informed decision about how or when to adopt a new management practice
- Skill - not having existing management skills to adopt a new practice
- Attitude - not supporting either the need to adopt a practice or the belief that the practice will accomplish the goal

The three tools that will be used to encourage landowners to adopt new practices are:

1. Information and education
2. Monetary and technical assistance
3. Ordinance and enforcement

The information and education strategy supports all these activities by providing awareness and changing attitudes. Waupaca County will continue its existing information and education program. Agricultural Performance Standard awareness will be emphasized whenever appropriate. The Land and Water Conservation Department will request additional assistance from UWEX to help facilitate Information and Education programs. Current activities include:

- Conservation Recognition Program
- Waupaca County Water Quality Program
- Scholarships to Youth Conservation Camp
- Conservation Poster and Speaking Contest
- Newsletters that include Agricultural Performance Standards
- Grade School Visits
- UWEX programs
- One on one visits with landowners

Summary of Staff Hours & Cost-Share Funds Needed To Implement 2012-2021 LWRM Plan

Goal	Annual Staff Time & Cost	Annual Cost-Share Funds Needed	Total Funds/Goal
A.- Implementation of Performance standards	4460 Hours \$156,100	\$575,000	\$731,100
B.- Implementation of Stormwater Management Standards	130 Hours \$4,550	Included in Goal A or from County Grant fund	\$4,550
C.- Farmland Preservation Compliance	2420 Hours \$84,700	Included in Goal A	\$84,700
D.- Groundwater & Karst Concerns	40 Hours \$1,400	\$2,000	\$3,400
E.- Permit and Ordinance Administration	1150 Hours \$40,250	Included in Goal A	\$40,250
F.- Lake and Stream Protection	280 Hours \$9,800	Included in Goal A	\$9,800
G.- Watershed Protection	16 Hours \$560	N/A	\$560
H.- Program Evaluation and Monitoring	155 Hours \$5,425	N/A	\$5,425
I.- Spending / Acquisition of State Cost-Share Funds	430 Hours \$15,050	N/A	\$15,050
J.- Forestry Management	370 Hours \$12,950	\$5,000	\$17,950
K.- Information and Education Strategy	\$9,800 280 Hours \$4,000 Budget	N/A	\$13,800
Totals	9731 Hours \$340,585	\$582,000	\$926,485

LWRM Plan Implementation Budget

The following information is based on the projected budget information available in 2012 to maintain the current 5 FTE. The projected average staff salary for the Waupaca County LWCD, with benefits, for 2012 is about \$35/Hour. The table below assumes a 3% annual increase in salary and benefits package. It should also be noted that Waupaca County LWCD records indicate that when training, sick leave and vacation are subtracted from a 2080 hour per year employee there is about 1760 effective working hours, per year, for our current employees. Based on the estimated total hours from the previous page the LWCD staff is currently 0.5 FTE short of the staff needed to implement the goals and objectives of this plan. Current funding trends may exacerbate this situation.

The following table is the best estimate of the budget needed to accomplish the goals of this plan assuming 5 FTE. Waupaca County will continue to utilize all available federal, state, county and private funds to accomplish the stated goals. Based on recent previous BMP funding it is within reason to assume Waupaca County LWCD staff can utilize approximately \$582,000 per year to implement various hard and soft practices. This is based on recent averages of two TRM grants annually totaling \$300,000, EQIP funding of \$200,000 and \$62,000 of annual SWRM Grant Cost-Share funds. It is important to note that without the proposed estimates of staffing and BMP grant dollars, this plan will not be fully implemented in a timely manner.

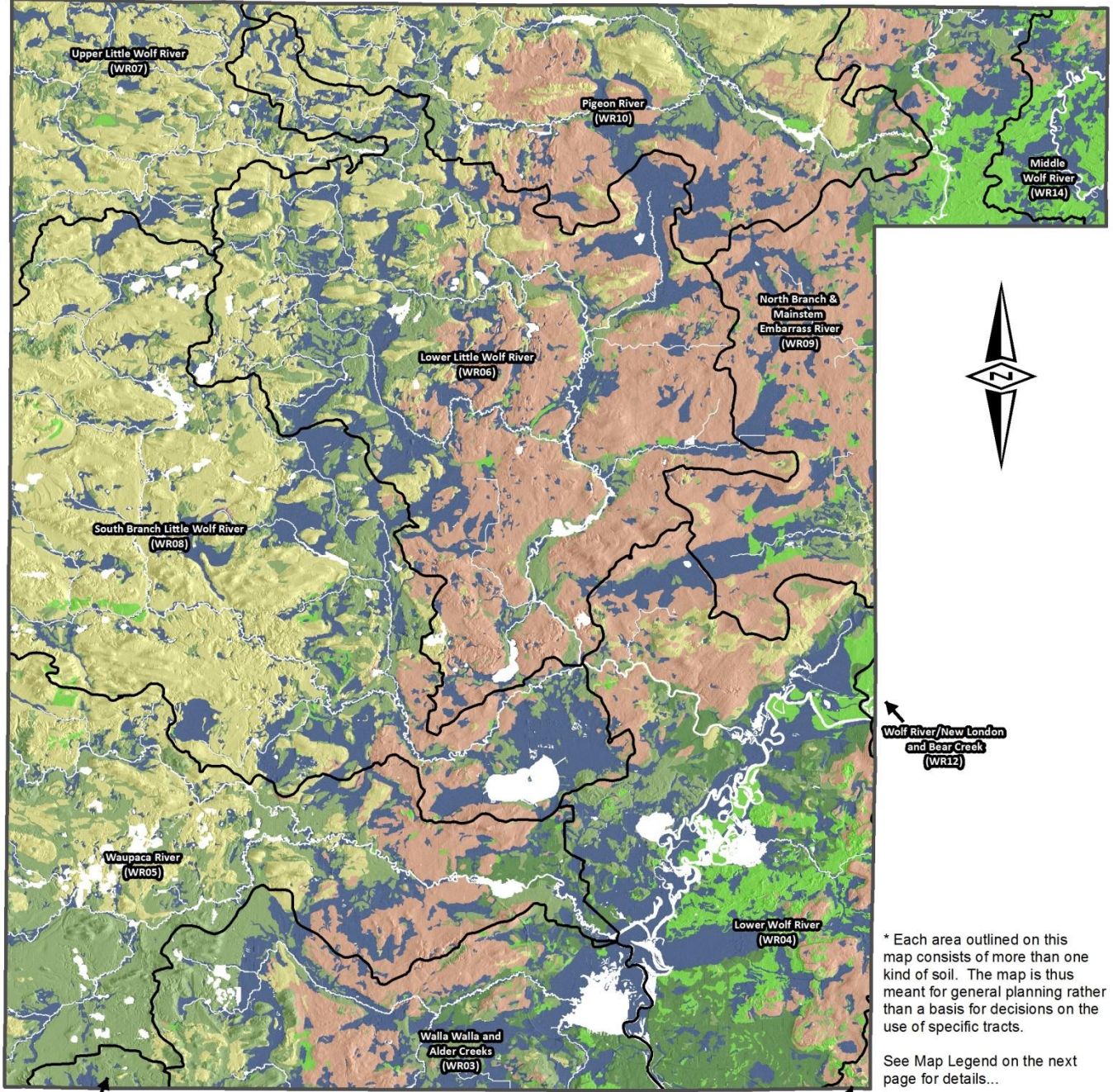
	2012	2013	2014	2015	2016	Totals
Staff Costs	\$364,000	\$375,000	\$386,000	\$398,000	\$410,000	\$1,933,000
BMP Funding	\$582,000	\$582,000	\$582,000	\$582,000	\$582,000	\$2,910,000
Totals	\$946,000	\$957,000	\$968,000	\$980,000	\$992,000	

	2017	2018	2019	2020	2021	Totals
Staff Costs	\$422,000	\$435,000	\$448,000	\$461,000	\$475,000	\$2,241,000
BMP Funding	\$582,000	\$582,000	\$582,000	\$582,000	\$582,000	\$2,910,000
Totals	\$1,004,000	\$1,017,000	\$1,030,000	\$1,042,000	\$1,056,000	

APPENDIX A – General Soils Map

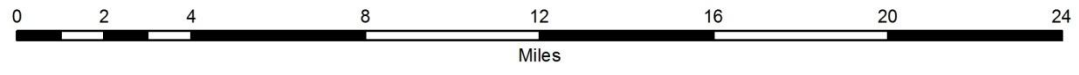
General Soil Map

Waupaca County, Wisconsin

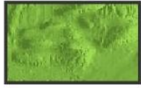


* Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

See Map Legend on the next page for details...



*Generalized Soil Classes



Primary Soils: *Plainfield-Richford-Kranski*

Description: Nearly level to steep, excessively drained to moderately well drained sandy soils; on uplands and stream terraces.

Secondary Soils: *Minocqua (Ms)*



Primary Soils: *Kennan-Rosholt*

Description: Nearly level to steep, well drained loamy soils; on uplands and stream terraces.

Secondary Soils: *Elderon (EcC/EcD), Oesterle (OeA), and Tilleda (TIB/TIC2)*



Primary Soils: *Hortonville-Symco*

Description: Nearly level to moderately steep, well drained and somewhat poorly drained loamy soils; on uplands.

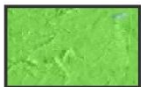
Secondary Soils: *Angelica (Ax), Military (MrB), Whalan (WhB, WhC2), and Whalan Variant (WvB)*



Primary Soils: *Borth-Poy*

Description: Nearly level and gently sloping, moderately well drained and poorly drained silty and loamy soils, in glacial lake basins.

Secondary Soils: *Nebago (Ne), Neenah (NhA), Oshkosh (OsB), and Tustin (TuB)*



Primary Soils: *Waupaca-Wega-Zurich*

Description: Nearly level and gently sloping, moderately well drained to poorly drained silty soils; in glacial lake basins.

Secondary Soils: *Rousseau (RsA), Shawano (SfB/SfC/SfD), Udipsamments (UdC), and Wainola (Wa)*



Primary Soils: *Cathro-Markey-Seelyeville*

Description: Nearly level, very poorly drained mucky soils; in upland depressions and on flood plains.

Secondary Soils: *Fordum (Fa), Loxley (Lx), Meehan (Mh/MIA), Menasha (Mp), and Roscommon (Rm)*

* Generalized soils classes were developed using the NRCS Soil Survey Data for Waupaca County.

APPENDIX B -

Waupaca County Land and Water Conservation Department Cost Sharing Policy

Financial assistance is provided to landowners and local units of government to help offset the cost of installing BMP's. The Land and Water Conservation Department distributes funding to landowners or operators, after the BMP has been installed, inspected, approved and a "paid" receipt is provided to the LWCD. In order to qualify for financial assistance, landowners must meet the eligibility criteria defined by the program for which they are receiving funds.

In order to receive cost sharing funds, landowners must enter into a cost share agreement with the Waupaca County Land and Water Conservation Department and Waupaca County. Cost share agreements are binding documents that secure funds for an individual practice. Recording requirements for cost share agreements will reflect individual program requirements. All structural practices have an operation and maintenance agreement of at least 10 years. The operation and maintenance agreement will be signed at project completion, detailing the landowner's maintenance schedule and responsibilities. This agreement is not required for certain practices, such as conservation tillage and nutrient management, which have no specific term.

Practices involving or located in wetlands and shorelines may require other local, state or federal permits. The landowner/cost share recipient is responsible for acquiring the necessary permits prior to installation of practices. These permits are required regardless of their participation in various programs.

The LWCD is responsible for enforcing compliance of cost share agreements, and will insure that practices installed through the program are maintained in accordance with the operation and maintenance plan for the appropriate length of time.

Cost Containment Procedures

Cost containment procedures are identified in this plan to control the costs of installing BMP's. The cost containment procedures used by Waupaca County are described below. The bidding procedure, average cost and flat rate lists can be obtained from the Waupaca County Land and Water Conservation Department.

Bids

Competitive bids will be required for all structural BMP's with estimated total costs, as determined by the project technician, exceeding \$5,000. A minimum of two bids from qualified contractors in an itemized bid format is required for each project. In cases where only one bid is received, the LWCD will determine if the bid constitutes an appropriate cost for the project. If no bids are received or if the lone bid is not deemed appropriate, the project may be placed back out for bids or the county may limit cost sharing based on average cost. The LWCD and landowner reserve the right to refuse any bids that are not deemed appropriate for the practice.

Average Costs

Average costs can be used for structural BMP's with an estimated cost of less than \$5,000, unless the cost share recipient decides, and the county agrees, to bid the installation of the BMP. If the cost share recipient or the county decides to bid a structural BMP under \$5,000, the bid procedure will apply. Payments for "in kind" contributions will be based on the county's guidelines. Landowners receiving financial assistance, who want to install a BMP using their own labor, material, and equipment, must submit a quote plus one quote from a qualified contractor for the practice installation.

Financial assistance payments will be based on actual installation costs. If the actual installation cost exceeds the amount of financial assistance on the contract by greater than 10%, the additional cost must be approved by the Land and Water Conservation Committee. Appropriate documentation regarding the need for changes will be submitted to the Land and Water Conservation Department.

Maximum Cost Share

Due to the increasing chances of a cost share recipient to receive multiple sources of funding the LWCC set a policy in 2009 that sets the maximum cost share amount at 90% of total project costs.

APPENDIX C - BMP Definitions

Agricultural Sediment Basin. A structure designed to reduce the transport of sediment of other pollutants eroded from agricultural fields to surface waters and wetlands.

Barnyard Abandonment or Relocation. Relocation of an animal lot from a critical site such as a floodway to a suitable site to minimize the amount of pollutants from the lot to surface or groundwater.

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

Buffers. Permanently vegetated areas immediately adjacent to lakes, streams, and wetlands, that filter pollutants from nonpoint sources.

Cattle Mounds. Earthen mounds used in conjunction with feeding and dry lot operations, providing a dry and stable surface area for cattle.

Contour Farming. Farming of sloped land so that all operations from seedbed preparation to harvest are done on the contour.

Contour Strip cropping. Growing alternating strips of row crops and grasses or legumes on the contour.

Critical Area Stabilization. Planting of suitable vegetation on nonpoint source sites and other treatments necessary to stabilize eroding lands.

Cropland Protection Cover (Green Manure). Cropland protection cover includes close-growing grasses, legumes or small grain grown for seasonal soil erosion protection and soil improvement.

Easements. Easements are legally binding restrictions on land titles. Easements are purchased to provide permanent vegetative cover.

Field Diversions. Channels constructed across the slope with supporting ridges on the lower side, to divert excess water to safe outlet in other areas.

Grade Stabilization Structure. Structure used to reduce the grade in a channel to protect the channel from erosion or to prevent the formation or advance of gullies.

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

High Residue Management. A system, which leaves at least 30 percent of the ground covered with crop residue after crops are planted.

Intensive Grazing Management (Rotational Grazing). Intensive grazing management is the division of pastures into multiple cells that receive a short but intensive grazing period followed by a period of recovery of the vegetative cover. Rotational grazing systems can correct existing pasturing practices that result in degradation and should replace the practice of summer dry-lots when this practice results in water quality degradation.

Lake Sediment Treatment. Lake sediment treatment is a chemical, physical, or biological treatment of polluted lake sediments. Sources of pollution to the lake must be controlled prior to treatment of lake sediments. Treatment does not include dredging.

Land Acquisition. The purchase of land or the interest in land, which is contributing or will contribute nonpoint source pollution or for the construction of an urban structural practice.

Livestock Exclusion from Woodlots. The exclusion of livestock from woodlots to protect the woodlots from grazing by fencing or other means.

Manure Storage Facility. A structure for the storage of manure for a period of time that is needed to reduce the impact of manure as a nonpoint source of pollution. Livestock operations where this practice applies are those where manure is winter spread on fields that have a high potential for runoff to lakes, streams and groundwater. The facility is needed to store and properly spread manure according to a management plan.

Manure Storage Facility Abandonment. Manure storage system abandonment is the proper abandonment of leaking and improperly sited manure storage systems, including: a system with bottom at or below groundwater level; a system whose pit fills with groundwater; a system whose pit leads into the bedrock; a system which has documented reports of discharging manure into surface or groundwater due to structural failure; and a system where there is evidence of structural failure. The practice includes proper removal and disposal of wastes, liner materials, and saturated soil as well as shaping, filling, and seeding of the area.

Milking Center Waste Control Systems. A milking center waste control system is a piece of equipment, practice or combination of practices installed in a milking center for purposes of reducing the quantity or pollution potential of the wastes.

Nutrient Management. The management and crediting of nutrients from all sources, including legumes, manure, and soil reserves for the application of manure and commercial fertilizers. Management includes the rate, method and timing of the application of all sources of nutrients to minimize the amount of nutrients entering surface and groundwater. This practice includes manure nutrient testing, routine soil testing, and residual nitrogen soil testing.

Pesticide Management. The management of the handling, disposal and application of pesticides including the rate, method and timing of application to minimize the amount of pesticides entering surface and groundwater. This practice includes integrated pest management scouting and planning.

Roofs for Barnyard Runoff Management and Manure Storage Facilities. Roofs for barnyard runoff management and manure storage facilities are a roof and supporting structure constructed specifically to prevent rain and snow from contacting manure.

Shoreline and Streambank Stabilization. The stabilization and protection of stream and lake banks against erosion and the protection of fish habitat and water quality from livestock access.

Shoreline Buffers. A permanently vegetated area immediately adjacent to lakes, streams, channels and wetlands designed and constructed to manage critical nonpoint sources or to filter pollutants from nonpoint sources.

Structural Urban Best Management Practices. These practices are source area measures, transport systems and end-of-pipe measures designed to control storm water runoff rates, volumes and discharge quality. These practices will reduce the amount of pollutants carried in runoff and flows destructive to stream habitat. These measures include such practices as infiltration trenches, porous pavement, oil water separators, sediment chambers, sand filtration units, grassed swales, infiltration basins and detention/retention basins.

Terraces. A system of ridges and channels with suitable spacing and constructed on the contour with a suitable grade to prevent erosion in the channel.

Wetland Restoration. The construction of berms or destruction of the function of tile lines or drainage ditches to create conditions suitable for wetland vegetation

APPENDIX D - Acronym Glossary

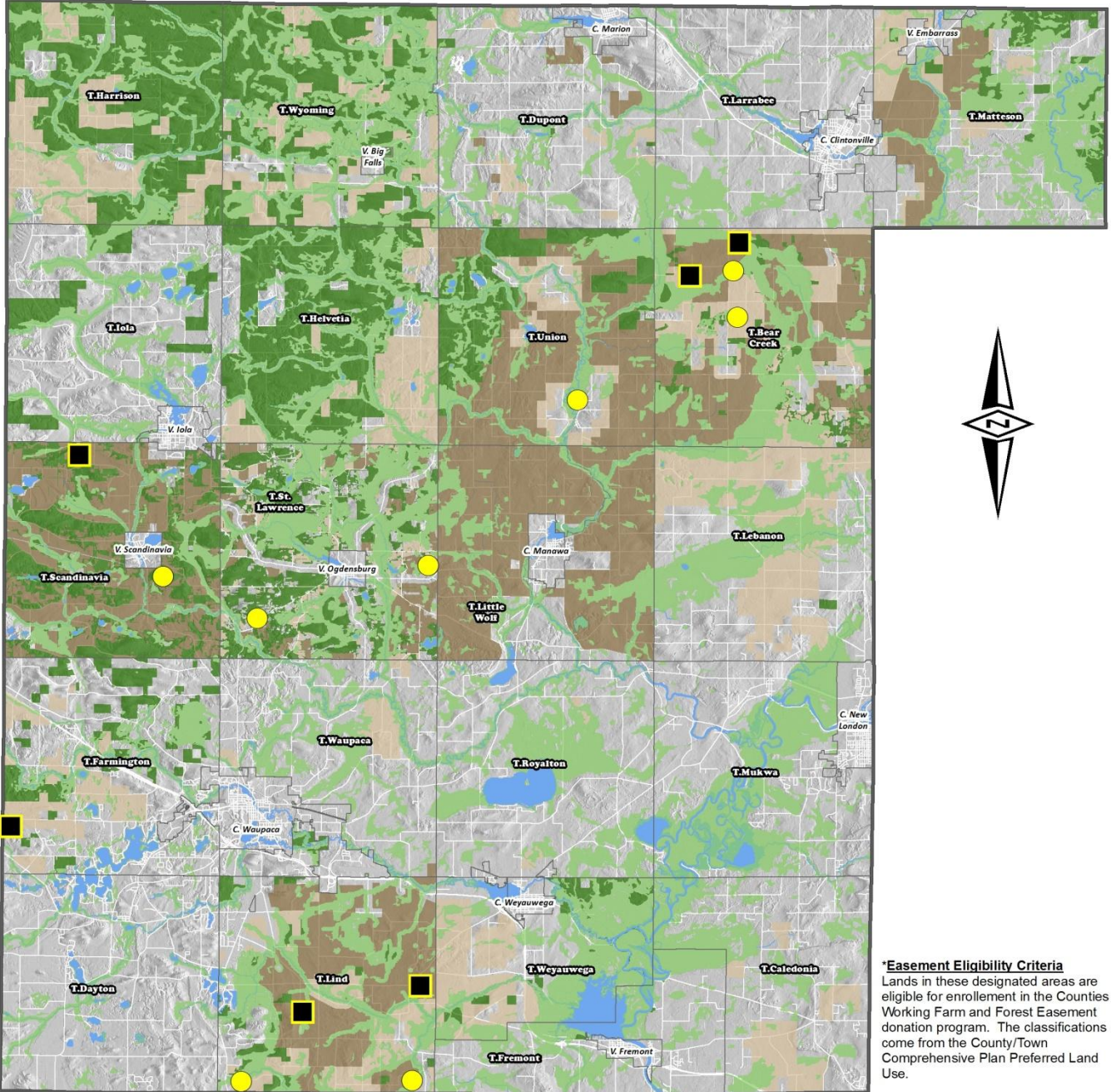
- BMP** **Best Management Practice.** Practices or combination of practices that are most effective for reducing nonpoint source pollution to acceptable levels.
- CREP** **Conservation Reserve Enhancement Program.** A program for landowners to set aside cropland (or pasture that is adjacent to surface waters) with annual rental payments through the contract period.
- CRP** **Conservation Reserve Program.** A program (provision of the 1985 and 1990 federal Farm Bills) that takes eligible cropland out of production and puts it into grass or tree cover for a specified number of years.
- DATCP** **Department of Agriculture, Trade and Consumer Protection.** Central state agency that sets and implements statewide soil and water conservation policies and administers the state's soil and water conservation programs. It also administers state cost-sharing funds for a variety of LCC operations, including staff, materials and conservation practices.
- DNR** **Department of Natural Resources.** State agency responsible for managing state owned lands and for the protection of public waters. DNR also assists LCCs, LCDs and individual land users in managing land, water, fish and wildlife through various programs.
- FPP** **Farmland Preservation Program.** This is a DATCP program providing income tax credits to farmers whose land is enrolled in the program. Farmers agree to keep their land in farming and meet soil conservation standards on the enrolled cropland.
- EQIP** **Environmental Quality Incentives Program.** This program focuses on assistance to locally identified conservation priority areas or areas where agriculture improvements will help meet water quality goals. Technical assistance and cost sharing on conservation practices are paid with EQIP funds, and fifty percent of the funds are dedicated to conservation associated with livestock operations.
- FSA** **Farm Service Agency.** This agency is part of the USDA and administers a variety of agricultural assistance programs including production controls, price supports and conservation cost sharing.
- GIS** **Geographic Information System.** Maps and layers of data about land including soils, land cover, topography, field boundaries, roads and streams are on a computerized system.
- LWCC** **Land & Water Conservation Committee.** Empowered by Chapter 92 of the

Wisconsin Statutes, this county government committee conserves and protects the county's soil, water and related natural resources.

- LWCD **Land & Water Conservation Department.** This county government department is responsible for administering the conservation programs and policies of the county.
- NRCS **Natural Resources Conservation Service.** The Federal Agency that is primarily concerned with technical resources for soil conservation and water quality; and also provides conservation planning, technical, and financial assistance to local participants in federal programs.
- RC&D **Resource Conservation and Development.** This is a USDA program that focuses on utilizing and conserving natural resources for economic development.
- T **Soil Loss Tolerance.** The erosion rate in tons per acre per year at which a soil could maintain productivity.
- TMDL **Total Maximum Daily Load.** A Total Maximum Daily Load, or TMDL, is a calculation of the maximum amount of a pollutant that a waterbody can receive and still safely meet water quality standards.
- SWRM **Soil and Water Resource Management Program.** This is a DATCP program that provides counties with funds to hire and support Land Conservation Department staff and assists land users in implementing DATCP conservation programs.
- UWEX **University of Wisconsin Extension.** UWEX establishes important learning connections with people in all walks of life, extending the boundaries of the university to the boundaries of the state.
- WHIP **Wildlife Habitat Incentives Program.** This program provides assistance to help landowners improve wildlife habitat on private lands.
- WRP **Wetlands Reserve Program.** Landowners can chose either permanent, 30-year easements or cost share agreements to restore wetlands through this program.

Appendix E

Lands Eligible for Waupaca County Conservation Easements



***Easement Eligibility Criteria**
 Lands in these designated areas are eligible for enrollment in the Counties Working Farm and Forest Easement donation program. The classifications come from the County/Town Comprehensive Plan Preferred Land Use.

***Donated Easement**
 These are properties that were donated through the Counties working Farm and Forest Land program.

Conservation Easements	
	*Donated Easement
	*PACE Easement
	Municipal Boundaries
	Surface Water

*Easement Eligibility Criteria	
	Agriculture Enterprise (AE)
	Agriculture Retention (AR)
	Private Recreation and Forestry Enterprise (PVRF)
	Resource Protection (RP)

***PACE Easement**
 State program, Purchase of Agriculture Easement (PACE). These properties were accepted under the first round of PACE applications in 2010.

APPENDIX F – LWRM Ranking Sheet

WAUPACA COUNTY CHECKLIST / RANKING SHEET

AGRICULTURAL PERFORMANCE STANDARDS & PROHIBITIONS

CHAPTER NR 151: RUNOFF MANAGEMENT, ATCP 50 SWRM PROGRAM

REVISED 3/31/2010 BH

EVALUATOR: _____ DATE: _____
 PRACTICE: _____ ESTIMATED C/S: _____

APPLICANT: _____
 ADDRESS: _____
 PHONE: _____
 TOWNSHIP: _____ SECTION: _____

1) What resource concern(s) will the proposed practice address?

	YES	NO
WATER QUALITY	<input type="checkbox"/>	<input type="checkbox"/>
SOIL EROSION	<input type="checkbox"/>	<input type="checkbox"/>
HABITAT BENEFIT	<input type="checkbox"/>	<input type="checkbox"/>

2) Will a "High Priority Practice" be installed? (SEE NOTE #2 & #3)

	YES	NO
NUTRIENT MANAGEMENT (SEG FUNDS)	<input type="checkbox"/>	<input type="checkbox"/>
BARNYARD RUNOFF / MANURE MNGMT. SYSTEMS	<input type="checkbox"/>	<input type="checkbox"/>
SOIL EROSION PRACTICES	<input type="checkbox"/>	<input type="checkbox"/>
PRIORITY WETLAND RESTORATION	<input type="checkbox"/>	<input type="checkbox"/>
UPGRADE OR ABANDON NONCONFORMING M.S.	<input type="checkbox"/>	<input type="checkbox"/>

3) Is the site 300' or less from a stream, drainage ditch, waterway or wetland; or less than 1000' from a lake? (See Note #1)

YES	NO
<input type="checkbox"/>	<input type="checkbox"/>

4) Is the site more than 300 ft and less than 1000 ft. from a stream, drainage ditch, waterway or wetland?

YES	NO
<input type="checkbox"/>	<input type="checkbox"/>

5) Will runoff be diverted away from contacting a feedlot, manure storage area or barnyard within a water quality management area (WQMA)?

YES	NO
<input type="checkbox"/>	<input checked="" type="checkbox"/>

6) Has this farm previously been inventoried by LWCD staff?

YES	NO
<input type="checkbox"/>	<input type="checkbox"/>

7) Is this BMP a design fix or repair of a previously cost-shared practice?

YES	NO
<input type="checkbox"/>	<input type="checkbox"/>

8) Will this BMP address a violation of the Waupaca County Manure Storage Ordinance?

YES	NO
<input type="checkbox"/>	<input type="checkbox"/>

9) Will the installed practice(s) result in the farm doing a 590 Plan for the 1st time to meet County Ordinance or NR 151 requirements?

YES

NO

10) If the practice is Manure Transfer does the site already have 6 months of manure storage?

YES

NO

N/A

11) Will the installed practice(s) address sheet, rill or gully erosion?

YES

NO

12) Will the installed practice(s) address shoreline/streambank erosion?

YES

NO

13) Will the installed practice(s) address barnyard or feedlot runoff?

YES

NO

14) If the BMP is for cropland soil erosion, does the field currently meet tolerable soil loss (T)?
(CALCULATED BY RUSLE 2)

YES

NO

N/A

15) Is there an unabandoned well on the property that will be decommissioned?

YES

NO

16) Will the installed practice address the four animal waste prohibitions?

- 1) No overflow of manure storage structures
- 2) No unconfined manure stacking within water quality areas
- 3) No direct runoff from feedlots or stored manure to waters of the state
- 4) No unlimited livestock access to waters of the state where high concentrations of animals prevent adequate sod cover maintenance

YES	NO
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

17) If the BMP is a wetland or streambank protection has a CH. 30 Permit been issued?

YES

NO

N/A

TOTAL POINTS:

PRACTICES TO BE INSTALLED	CS PROGRAM	PLANNED UNITS	ESTIMATED COST
			TOTAL:
			TOTAL CSA:
PROJECT COMMENTS:			
<p>NOTE #1: A stream, lake, wetland, waterway or ditch as defined by red outline in the Waupaca County Nutrient Management GIS Map.</p>			
<p>NOTE #2: Nonconforming Manure Storage are any non permitted earthen pits built after 1985 or any non permitted concrete structures built after 2004.</p>			
<p>NOTE #3: APPLICABLE STANDARDS / CODES</p> <p><u>NUTRIENT MANAGEMENT:</u> (ATCP 50.78) <u>BARNYARD RUNOFF SYSTEMS:</u> (ATCP 50.62 50.63 50.64 50.77 50.85 50.93 50.94) <u>WINDBREAK ESTABLISHMENT / RENOVATION:</u> (ATCP 50.71) <u>SOIL EROSION PRACTICES:</u> (ATCP 50.69 50.70 50.73 50.91 50.95 50.96) <u>PRIORITY WETLAND RESTORATION:</u> AS DEFINED BY Waupaca County</p>			

APPENDIX G – Public Notice

WAUPACA CO
811 HARDING ST
Attn: Land & Water Conservation Dept., Brian Haase
WAUPACA, WI 54981

NWCP231059
0003988481

STATE OF WISCONSIN-
County of Waupaca - ss.

LEGAL

(Publish March 8, 15, 2012)

**NOTICE OF
PUBLIC HEARING**

A public hearing will be held by the **Land & Water Conservation Committee** of Waupaca County on Monday, March 19, 2012 starting at 2:00 p.m. in room LL42 at the Waupaca County Courthouse, 811 Harding Street, Waupaca, Wisconsin, to hear the following:

Proposed update to the Waupaca County Land and Water Resource Management Plan 2012-2021.

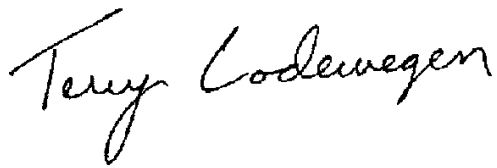
All interested persons wishing to be heard are invited to be present.

For further information, please contact the **Land and Water Conservation Department**, Courthouse, 811 Harding Street, Waupaca, Wisconsin 54981-2087. Phone: (715) 258-6245.

DON PETERSON
CHAIRPERSON
LAND & WATER
CONSERVATION
COMMITTEE

WNAXLP

Terry Lodewegen, being duly sworn, doth depose and say that he is, and during the time of the publication of the notice hereinafter mentioned was the publisher of COUNTY POST EAST and/or COUNTY POST WEST, which are a newspapers of general circulation published in the City of Waupaca, and County of Waupaca, and State of Wisconsin, and that the annexed printed notice, taken from said newspaper/s, was regularly published in said newspaper two weeks successively, once in each week, prior to the time specified in said notice, which publication commenced on the 8th day of March, 2012 and was last so published on the 15th day of March, 2012



Publication Fees: **\$30.52**
Affidavit Fees: **\$1.00**
Total: **\$31.52**

Sworn and subscribed to before me this 15th day
of March 2012.

Notary Public, WI Bernice R. Fuhmann

My Commission Expires September 06, 2015

**APPENDIX H – County Board and State Land & Water Conservation
Board Resolutions**

RESOLUTION NO. 35 (2011-2012)

WAUPACA COUNTY

**RESOLUTION ADOPTING THE WAUPACA COUNTY 2012 LAND AND WATER RESOURCE
MANAGEMENT PLAN**

WHEREAS, the Wisconsin State Legislature mandated that counties develop a Land and Water Resource Management Plan as part of Wisconsin ACT 27 in October, 1997, and

WHEREAS, the Waupaca County Board of Supervisors supports the protection and preservation of the county's soil and water resources and,

WHEREAS, this plan is a continuation of the 1999 and 2006 Waupaca County Land and Water Resource Management Plans and,

WHEREAS, this plan integrates all of the programs currently being administered by the Waupaca County Land and Water Conservation Department and,


WHEREAS, an official public hearing was conducted on March 19th, 2012 and,

WHEREAS, the Department of Agriculture Trade and Consumer Protection does not require implementation if grant monies are not available,

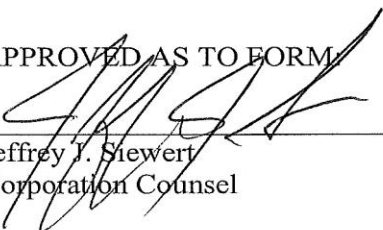
NOW, THEREFORE, LET IT BE RESOLVED, by the Board of Supervisors of the County of Waupaca, that the Waupaca County Land and Water Resource Management Plan be adopted and implementation of the plan begin upon approval by the Wisconsin Land and Water Conservation Board.

Passed this 20th day of March, 2012.

24 Ayes 0 Nays

ATTEST:


Mary A. Robbins
Waupaca County Clerk

APPROVED AS TO FORM:


Jeffrey J. Stewert
Corporation Counsel

RECOMMENDED FOR INTRODUCTION BY:
THE WAUPACA COUNTY LAND &
WATER CONSERVATION COMMITTEE

