

IOWA COUNTY LAND CONSERVATION  
DEPARTMENT

LAND AND WATER RESOURCE MANAGEMENT PLAN  
2016



## IOWA COUNTY LAND AND WATER RESOURCE MANAGEMENT PLAN

Developed by the **Department of Land Conservation** under the administrative leadership of the

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## PLAN SUMMARY

In Wisconsin, Counties have been under statutory authority to plan and implement conservation progress to meet local needs. Recent changes in State law requires each County to develop a County Land and Water Resource management Plan (LWRM Plan). This plan has been developed to meet these requirements and to serve as a guide for local conservation efforts, administration by County, State and Federal Agencies.

In the process of developing a 10-year LWRM Plan, the Iowa County Land Conservation Committee (LCC), through the Land Conservation Department (LCD), has gathered information, comments and recommendations from a resources survey and citizen meetings with a “Public Hearing” held on October 8, 2015 at 9:00 A.M. The LCC appreciated the valued input from the members of the Citizens Advisory Committee (CAC) who met on April 9, 2015 at 3:00 P.M. and the Local Work Group (LWG) representing conservation partners.

A recent review of Iowa County soil and water resources shows that there is a trend in the County to increase agriculture production and wildlife habitat. It is noted in the body of this LWRM Plan that over 20,000 (31.5 sm) acres have come out of CRP and gone in to commodity crops (i.e. corn and soybeans). This is a result of a growing demand for bio-fuels. Also, the County’s animal agriculture is declining in the numbers of cattle, however the operations and herds are increasing in animal units. These larger operations tend to be located in areas of the County with more productive soils. Recreation, for estry and lower impact agriculture operations tend to be located in the northern and eastern parts of the County, which are dominated by lesser productive soils. The DNR Basin Plans – The Lower Wisconsin, The Sugar-Pecatonica, and the Grant-Platte – are referenced when implementing the County’s work plan. In addition, the priority farm definition is: farms in watershed draining to DNR listed as “Impaired Waters Section 303(D) or “Outstanding and Exceptional Resource Water”; farms with livestock or that have significant manure management problems; farms making clearly excessive nutrient applications; or farms with clearly excessive rates of cropland erosion. This definition will be guidance for NR-151 inventory, evaluations and implementation. Other items of compliance review are voluntary requests, complaint driven calls and farmers with animal agriculture waste issues. The Iowa County LCD is working with the

County's Land Records Office and the Information Systems Department in the attempt to develop a record keeping mapping and software system for compliance status.

The NR-151 Performance Standards are identified and local implementation is discussed within the LWRM Plan. To implement NR-151 standards, a variety of cost share programs will be explored and offered through the United States Department of Agriculture (USDA), the Department of Natural Resources (DNR), and the Department of Agriculture, Trade and Consumer Protection (DATCP) funding.

As noted, the components of the local process of implementing NR-151 starts with defining a priority farm, dispensing information and notifying the landowners, and then monitoring and evaluating to assess our progress towards the LWRM goals. Other components of implementation are: financial considerations with NR-151; onsite farm visits; notification; technical assistance and cost sharing for voluntary and non-voluntary participation; re-evaluation of farms or parcels for compliance; the process for appeal of non-compliance decisions; and enforcement actions.

The ten priorities set by the Local Work Group are: Soil Erosion; Water Quality (Groundwater); Animal Waste (Management); Nutrient Management; Forestry; Riparian Corridors; Agricultural Productivity; Rural Land Uses Issues/Conflicts; Agricultural Sustainability; and Loss of Agricultural Land. An additional area of concern are Large Farms, which is addressed in the work plan. Each priority is explained in detail and its goal listed in a 5 Year Work Plan. These long range priorities and goals will be accomplished through coordination with local, state, and federal agencies in partnerships with private organizations.

In Iowa County, the Farmland Preservation Program has always been a great tool in dealing with soil erosion and will continue to be a focus in dealing with soil erosion and will continue to be a focus to meet NR-151 standards. (Please see the enclosed forms for FPP Farm Visits, Compliance Certificates and Non-Compliance Certificates). Water Quality with an emphasis on groundwater will be addressed through well decommissioning efforts and surface water quality a function of animal waste (management) and Nutrient Management Planning. Additionally, Phosphorous Trading and Adaptive Management has been addressed for consideration in this plan. Forestry and Riparian Corridors are issues that when expanded, will result in economic development, environmental protection and wildlife benefits. Other priority items are social/development issues in the County. However, all priorities are focused on clean water and productive soil which will result in an environment that will support a strong agriculture community, recreational opportunities and economic development.

**\*PLEASE REFER TO APPENDIX B ON PAGE 82 FOR SUPPORTING MAP INFORMATION RELATED TO ITEMS IN THIS PLAN.**

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## INTRODUCTION



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### *LAND AND WATER RESOURCE MANAGEMENT PLANNING*

In 1996, the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) proposed that conservation professionals come up with a list of changes that would improve soil and water conservation programs. In October of that year, the Wisconsin Land and Water Conservation Association (WLWCA) developed a document entitled “Recommendations for Wisconsin’s Nonpoint Source and Soil and Water Resource Programs.” The primary goal of the Land and Water Resource Management Plan is to allow for the setting of priorities at the local level to improve water quality by reducing sedimentation and nutrient loading to waters of the State of Wisconsin.

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### *STATUTORY AUTHORITY*

Through the 1997 Wisconsin Act 27, (1997-1999 Biennial Budget), land and water resource management plans became a reality. Chapter 91.10 of State Statutes was amended to create a county land and water resource management planning program. This plan has been prepared to meet the requirements of Wisconsin State Statutes 92.10(6) (a) 1-5.

### ***What is a Land and Water Resource Management Plan?***

The land and water resource management plans were conceived to be a working, dynamic document, the major goals of the plans are to:

- ◆ Outline a seamless approach for program integration
- ◆ Outline and prioritize resource concerns of the county
- ◆ Develop a strategy for local partnerships
- ◆ Develop an information and education strategy
- ◆ Develop a progress tracking system
- ◆ Coordinate local, state and federal resources

## IOWA COUNTY OVERVIEW

Iowa County is in the southwestern part of Wisconsin. It is bordered on the north by the Wisconsin River, beyond which are Richland and Sauk Counties. Grant County forms the Western boundary, and Lafayette is on the Southern border. Dane County is our Eastern neighbor.

The land area of Iowa County is 781 square miles or 499,840 acres. An additional 7 square miles, or 4,800 acres is covered by water. The County has 14 civil townships. Dodgeville, the county seat, is near the center of the County.

Iowa County lies within the unglaciated part of Wisconsin. It is in the western upland physical region of the state. In general, the County is a dissected plateau that has fairly broad, rolling ridges and steep sided valleys.

The most striking topographical feature of the County is the steep escarpment that faces the Wisconsin River. The ridge above the escarpment is known as Military Ridge. It extends through the towns of Cobb, Edmund, Dodgeville, Ridgeway and Barneveld. Reaching southward from its crest is a long gentle back slope that has a drop in elevation of about 6 feet per mile. In the town of Brigham in the east central part of the County, near Blue Mounds, is an outlier of Maquoketa shale capped with Niagara limestone. Here, the elevation is 1,716 feet. This point is among the highest in the state.

The ridges range in elevation from 1400 feet at Barneveld in the southeastern part of the County, to 1200 feet, near Dodgeville, and to 1100 feet near Livingston in the southwestern part of the County. The bottoms of the valleys are 300 or more feet below the tops of the ridges and are between  $\frac{1}{4}$  and  $1\frac{1}{4}$  miles wide. They are deepest and widest near the Wisconsin River. Above the present flood plains are several levels of river terraces. The topography of the terraces is gentler than that on the ridge, although in some places the terraces are highly dissected by streams.

Most parts of the County are well drained. The Wisconsin River, which flows along the northern boundary, carries drainage waters from the north side of Military Ridge into the Mississippi River. In the area south of Military Ridge, the Pecatonica River and its tributaries, and smaller streams are fed by numerous springs from which there is permanent flow of water.

These springs were very important to the development of animal agriculture and present a challenge now in keeping surface water quality clean. In addition, the karst bedrock overlain by fragile topsoil can provide a direct conduit to groundwater aquifers. Nutrient Management Planning will be a useful tool in the protection of our precious surface and groundwater resources. In addition, well decommissioning as a cost share practice has been and will be employed in further groundwater protection.

Iowa County has been exclusively Ag Zoned under the Farmland Preservation Program since 1978. The FPP has, in addition to a zoning component, a soil conservation component. This soil erosion standard is a requirement to a tolerable soil loss limit, commonly referred to as "T". The average "T" in Iowa County is 4 tons per acre. As mentioned – the transect survey has documented good progress in meeting "T" (estimated 85% of cropped fields and nearly 95% at 1 ½ "T" or 6 ton loss). This is a direct result of 57% participation in the FPP program. This strong participation in the FPP program has resulted in over 680 active conservation plans being followed and monitored annually. However, with recent State law changes causing FPP compliance to include all prohibitions without tax credit improvements, it will most likely jeopardize the soil erosion benefits of the program. Use value taxation has reduced real estate bills on Ag lands in Iowa County. This real estate tax situation, could result in commodity crops being grown on soils and slopes not capable of such use.

Soil erosion is present and occurs each year in Iowa County due to sheet and rill erosion. This erosion is often hard to detect on a given field in a given year because of the relatively thin layer of soil it represents. On-site damage from this erosion are mainly in the long-term loss in soil productivity due to change in soil structure and chemistry and reduction in thickness. The relatively small annual losses in productivity from this excessive erosion have been masked in the past with improved seed varieties, heavier fertilization and an increase of herbicides and pesticides; although it has cost farmers extra dollars to make up for the loss of natural fertility.

Other economic conditions that will most likely effect the soil erosion scenario is the demand for corn and soybeans for the production of bio-fuels. At the present time there is an ethanol plant in Monroe (about 30 to 40 miles SE), one proposed within the county in Arena and one proposed in Belmont (10 miles S). All projecting needs for millions of bushels of corn – with the county presently producing 12 million bushels from all corn (including corn for cattle fed locally). In addition, recent new crop prices being quoted at \$4+/bu for corn and \$8+/bu for soybeans will make it very attractive for farmers to plant more acres of these crops on marginal soils.

One more factor that could dramatically alter the landscape and soil loss issues in the county is the lack of renewable CRP contracts. At its height, 20-22% of all Iowa County cropland was enrolled in CRP. Over 22,000 acres have come out of CRP and gone into commodity production. As mentioned, increased prices for corn and beans – coupled with strong land rental rates - may not be enough incentive to maintain enrollment and continue the soil protection and habitat benefits of this program.

In summary –

- Changes in the FPP program
- Current use value real estate tax structure
- Bio-fuel demand
- Reduced CRP participation has caused tremendous pressures on our soil and water resources and challenges for farmers and others working on resource protection

## IOWA COUNTY SOIL CHARACTERISTICS

The soils of Iowa County may be grouped into associations. An association is a landscape that has a distinctive proportional pattern of soils. It normally consists of one or more major soils and at least one minor soil. The soils in one association may occur in another, but in a different pattern.

A description of six soil associations present in Iowa County can serve to explain the value and use of the different land areas for agriculture and other purposes. Each association has somewhat different capabilities for agriculture and requires generally different management practices.

### 1. Tama, Dodgeville

This soil association consists of dark-colored, deep, silty soils that are nearly level to sloping. The soils are on broad ridgetops. The Tama and deep Dodgeville soils are predominant. They formed under prairie, mainly in the windblown silt.

The soils in this association are fairly easy to manage. They are among the most desirable soils for agriculture of any in the county.

### 2. Dodgeville, Sogn

The soils in this association are dark colored and silty and are moderately deep to thin. They are gently sloping to strongly sloping. The soils are on fairly narrow ridgetops. Dodgeville and Sogn soils are predominant. They formed in silt over clayey material weathered from limestone bedrock. The original vegetation was prairie grasses.

The soils in this association have a thinner solum than those in Tama, Dodgeville, mainly because they formed in a thinner layer of silt.

In most of the acreage, the soils are suited to agriculture. More careful management is needed, however, than is required for the soils in Tama, Dodgeville.

### 3. Dubuque, deep, Fayette

This soil association is made up chiefly of light-colored, deep Dubuque soils and soils of the Fayette series. The soils are on fairly broad ridgetops that are gently sloping to sloping. They formed under a hardwood forest in moderately deep to deep deposits of silt laid down by wind.

The soils in this association are likely to erode. They require careful management to protect them from erosion, but they are otherwise suited to agriculture.

### 4. Dubuque, Steep stony and rocky land

This soil association is made up mainly of Dubuque soils and of areas of Steep stony and rocky land. The soils are in rolling areas along the major streams and on steep slopes between upland ridges and the bottoms of valleys. They are stony in many places. Outcrops of rock are common.

The Dubuque soils formed in moderately thin deposits of silt that overlie clayey material weathered from limestone. Steep stony and rocky land is made up of outcrops of rock and of small areas soils that are medium textured; the small areas of soil material are moderately deep to shallow over limestone and sandstone bedrock.

Some areas of Dubuque soils in this association are suited to cultivated crops.

Generally, however, most of this association is best suited to pasture or to trees.

## **5. Dakota, Sparta, Gotham**

This soil association is made up mainly of nearly level Dakota, Sparta, and Gotham soils. The soils are moderately deep and are underlain by sandy outwash. They are medium textured to light textured. The Dakota and Sparta soils are dark colored, and the Gotham are moderately dark colored. The soils are on stream benches, or terraces, above the flood plains of major streams in the county. They are mostly along the Wisconsin River.

The soils in this association are used intensively for agriculture. They are likely to be droughty, but they are productive if well managed.

## **6. Loamy alluvial land**

This soil association is made up principally of Loamy alluvial land and Loamy alluvial land, poorly drained. Typically, the soils consist of a mixture of sediments deposited by water. They are nearly level and are on flood plains where they are likely to be flooded by overflow from adjacent streams. Generally, the water table is high.

Some of the better drained areas of this association are not subject to frequent overflow and can be used for cultivated crops. Most of the association, however, is probably best used for limited pasture, for trees, or for wildlife areas.

## **LAND CAPABILITY CLASSES**

A widely used system of classification of soils primarily for agriculture purposes is called "land capability classification." This system is based on the most intensive longtime use for agricultural land; site, surface and subsoil characteristics; soil limitations for safe use in crop production; and conservation practices for most intensive longtime land use needed to correct limitations and/or potential soil management problems, serve as classification criteria. In this classification system, soils are grouped according to their potentialities and limitations (if any) for sustained production of common crops. This classification system places soils in eight capability classes. This risk of soil damage or limitations in use becomes greater in progressing from Class I thru Class VII. Soils in Classes I, II, III and IV, with good soil conservation management, are suited for cultivation. Soils in Classes V, VI, and VII, with good soil conservation management, are suited for cultivation. Soils in Classes V, VI, and VII, with good soil conservation management, are suited for pasture, woodland, and wildlife. Soils in Class VIII are generally non-productive for agricultural purposes and are recommended for wildlife habitat.

Please refer to <http://soils.usda.gov> for the most current soils information.

## TRANSECT SURVEY

Iowa County LCD has done a County-wide Transect Survey since the inception by DATCP. Now, that there is enough data over the years to calculate trends – it appears that we continue to make progress on soil erosion. As a result of the last Transect Survey nearly 85% of all farmed fields are meeting “T” (this is the highest percentage of all unglaciated Counties). In addition, when soil loss rates are extrapolated, nearly 95% of our fields are at “1 ½ T”. The average “T” capacity in Iowa County soils is 4 ton/acres.

Therefore, it will be a challenge as we move into an era of demand for more corn and beans. Technology, no-till practices and education will be key components to meeting soils loss limits. The Transect Survey is a “real report card” on this progress, as staff and support is always an issue of work load accomplishments, it is hoped that the survey will continue to be conducted on an every-other-year basis.

## INTRODUCTION TO DNR BASIN PLAN (WITH SUMMARY AND RECOMMENDATIONS)

**Please refer to Appendix C, pages 99-126 for DNR Watershed Basin Plan for Lower Wisconsin River LW-15/Mill & Blue Mounds Creek and Lower Wisconsin River LW-17/Black Earth Creek.**

Iowa County has 3 major river basins: the Sugar-Pecatonica, the Grant Platte, and the Lower Wisconsin River Basin. Further information on basin plans can be found on the DNR website at <http://dnr.wi.gov/org/gmu/gmu.html>.

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## OVERALL RECOMMENDATIONS

**Summary of county wide issues of concern, priorities and recommendations**

### NON-POINT SOURCE POLLUTION

**Issue:** The public participation results show that issues such as soil erosion, non-point discharge to rivers and lakes, impacts from herbicides and fertilizers and impact from livestock operations all rank high on a list of concerns of basin residents.

**Objective:** Work with landowners to reduce the amount of non-point pollution, especially soil, pesticides, fertilizers, metals, and chemicals that reach streams in the Sugar-Pecatonica Basin.

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RECOMMENDATIONS:

- Assist landowners in implementing best management practices (BMPs) on the land throughout the county to reduce non-point source pollution from soil erosion and storm water runoff. To secure funding to encourage installation of these practices, agencies should work with landowners to apply for federal Environmental Quality Improvement Project (EQIP) programs. The county should apply for Targeted Runoff Management grants for work in watersheds where a consolidated effort to implement BMPs would result in a reduction of sediment and phosphorus loading. Municipalities with wastewater discharges to waters in the county should work with the DNR and county LCD to implement adaptive management strategies where applicable. **Who:** *DNR, Iowa County Land Conservation Department (LCD), Natural Resources Conservation Service (NRCS), and municipalities*
- Implement NR 151 performance standards to minimize sediment delivery to surface waters. **Who:** *DNR and Iowa County LCD*
- Work with the county on identification of sub watersheds for development and implementation of 9-key element plans designed to reduce sediment and phosphorus loading to high priority waters in the county. **Who:** *DNR and Iowa County LCD*

**Objective:** Reduce the amount of runoff from urban sites such as yards, hard surfaces and construction sites that reach streams in the Sugar-Pecatonica Watershed.

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RECOMMENDATIONS:

- Work with local municipalities in developing and enforcing storm water management plans. Begin this process early in the planning stages of development rather than reacting to approved plans. Incorporate these management plans into an adaptive management strategy where applicable. **Who:** *DNR, regional planning agencies, and municipalities*
- Implement NR 152 performance standards to reduce erosion from storm water and building construction sites. **Who:** *DNR, Iowa County LCD, and municipalities*
- Conduct workshops with landowners, developers, and city officials on runoff management techniques. **Who:** *DNR and Iowa County LCD*

- Develop a variety of runoff management techniques and conduct workshops for landowners, developers, and city officials to promote these techniques. **Who:** DNR, Iowa County LCD, UW-Extension (UWEX), Department of Agriculture, Trade, and Consumer Protection (DATCP), Natural Resources Conservation Service (NRCS)

**Objective:** Provide educational and informational opportunities to local residents for them to learn more about watershed ecology and effects of non-point source pollution on the quality of life in the watershed.

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RECOMMENDATIONS:

- Develop and provide workshops, and educational materials that explain the benefits of soil protection, wise land use, and preservation of water quality and to develop an environmental ethic within agricultural and urban communities. **Who:** DNR, UWEX, Iowa County LCD, Future Farmers of America (FFA), and schools, and other partners

**Objective:** Provide educational and informational opportunities to local residents for them to learn more about watershed ecology and effects of growth on the watershed and water quality.

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RECOMMENDATIONS:

- Make basin resource information accessible to all interested citizens through public gatherings, participation in stakeholder meetings, newsletters and the World Wide Web. **Who:** DNR and other partners
- Support the activities of the Basin Educator by providing financial and technical aid for activities such as volunteer stream monitoring, the Water Education Library, and basin-wide seminars. **Who:** DNR, UWEX, Iowa County LCD
- Encourage development of “home-owner” education programs devoted to protection of the environment. **Who:** DNR, UWEX, schools, Iowa County LCD

## GROUNDWATER CONTAMINATION

**Issue:** Safe drinking water is important to all communities in the basin. Protection and improvement of the quality of the groundwater and drinking water in the basin by removing sources of groundwater contamination, increasing public awareness of groundwater and encouraging private well-testing are priorities.

**Objectives:** Increase public awareness of groundwater pollution and increase testing of private water supply wells.

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### RECOMMENDATIONS:

- Promote public presentations on well maintenance and construction standards, well owner education, contractor education, and increased private water well testing in the basin. **Who:** *Iowa County LCD, NRCS, UWEX, DNR, and Wisconsin Rural Well Association (WRWA)*
- Promote well-driller education. **Who:** *DNR, UWEX, NRCS*

**Objective:** Identify potential sources of groundwater and drinking water contamination and remove, mitigate, or reduce these sources to the extent possible.

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### RECOMMENDATIONS:

- Promote the proper abandonment of unused wells by providing well abandonment demonstrations and financial support. **Who:** *DNR, UWEX, Iowa County LCD*
- Promote nutrient and pesticide management in the basin in an effort to reduce the amount of groundwater contamination that results from these two sources. **Who:** *DNR and other basin partners*

**Objective:** Aid private landowners and communities in properly locating new wells and in designing wells and well head protection zones to better ensure safe drinking water supplies.

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## RECOMMENDATIONS:

- Communities without wellhead protection plans should evaluate their wells and consider developing one. **Who:** *Local communities*
- Work cooperatively with producers and communities during the siting of concentrated animal feeding operations (CAFOs), in the basin. **Who:** *DNR*
- Promote nutrient and pesticide management to reduce the amount of groundwater contamination. **Who:** *DNR, Iowa County LCD, UWEX, local communities*
- Educate developers and citizens on the importance of protecting recharge areas. **Who:** *DNR, Iowa County LCD, UWEX*

## HABITAT AND WILDLIFE PROTECTION, IMPROVING IN-STREAM HABITAT

**Issue:** Protection of terrestrial and aquatic habitat are inter-related and benefits all biotic communities in the basin. Protection of these resources requires partnership between DNR, NRCS, UW-Extension, the county, local communities and units of government, local conservation organizations, and interested citizens to ensure that lands and waters in the basin maintain their highest quality.

**Objective:** Monitor streams throughout the basin to measure stream health as well as trends resulting from management and protection efforts.

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## RECOMMENDATIONS:

- Implement the DNR monitoring strategy for selected watersheds in the county. See watershed narratives for recommended streams. **Who:** *DNR*
- Include fisheries data and in-stream habitat assessment and water quality information with all baseline monitoring. **Who:** *DNR*

- Enter results from data collection into a centralized database system for easier access and summarization. **Who:** DNR
- Monitor select streams to track the status of aquatic organisms listed as state endangered and threatened species and state species of concern. **Who:** DNR
- Enlist the help of local groups, schools, and volunteer monitors to collect data and information on streams in the basin. **Who:** DNR, UWEX, and volunteer groups

**Objective:** To improve wildlife habitat in the basin for both game and non-game species, and protect rare plants and vegetative communities through both participation in federal programs and through local or state restoration efforts.

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#### RECOMMENDATIONS:

- Have as a goal the restoration of grasslands to mimic the natural pre-European vegetation of the Driftless Area of Wisconsin for all upland habitat restoration and resource management projects. Work to identify priority areas and implement recommendations from the Southwest Wisconsin Grassland Conservation Area group. **Who:** resource agencies and non-profit groups
- Work with private landowners in the county to develop cooperative agreements for stewardship of rare plants on private lands as opportunities arise. **Who:** DNR, USFWS, UW-Platteville
- Form a land trust centered on southwest Wisconsin to assure the protection of ecologically important landscape features with priority placed on those areas identified in the Wisconsin Land Legacy Report. **Who:** Various state and local agencies and non-profits
- Identify and implement Environmental Quality Improvement Projects (EQIP), Conservation Reserve Program (CRP), and Conservation Reserve Enhancement Program (CREP) and other land use practices and projects within county that will increase habitat for pheasants, quail, and other game birds as well as grassland songbirds. **Who:** DNR, NRCS, and Iowa County LCD, conservation organizations
- Continue program of prescribed burning to promote the health of natural prairie species. **Who:** DNR, conservation organizations

- Continue working with landowners on management of woodlands in the basin. **Who:** DNR Forestry staff
- Conduct surveys to track the status of terrestrial species, plants, and vegetative communities that are listed as state threatened and endangered species, and state species of concern. **Who:** DNR

**Objective:** Protect high quality systems from degradation and restore riparian and in-stream habitat to improve overall quality and stream health throughout the Sugar-Pecatonica Basin.

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#### RECOMMENDATIONS:

- Identify streams in the county for habitat improvement and stream bank protection, restoration and/or acquisition of riparian lands. Look for opportunities to work with other groups such as the Southwest Grasslands Conservation Program Area and Bird Conservation Area groups. See watershed narratives for recommended streams. **Who:** DNR, Iowa County LCD, conservation groups, and individuals
- Protect and/or restore riparian wetlands. **Who:** DNR, conservation organizations, landowners, and local governments
- Protect spring heads and headwater tributaries that provide water to cold water streams in the basin. **Who:** DNR, Iowa County LCD, regional planning agencies, local communities
- Develop native grassland buffers, grassed waterways and other woodland and wetland buffers to retain nutrients and sediment and prevent them from entering surface water in the basin. **Who:** DNR, NRCS, Iowa County LCD
- Assess streams in which improvements have been made to determine the success of the project. **Who:** DNR and volunteer monitors
- Work cooperatively to help site concentrated animal feeding operations (CAFOs) in the basin. **Who:** DNR and local governments
- Survey and identify failing on-site waste disposal systems adjacent to streams, particularly Outstanding Resource Waters and Exceptional Resource Waters streams. **Who:** public health agencies

- Encourage soil testing for cropland to encourage the development of nutrient and pesticide management plans. **Who:** DNR, DATCP, Iowa CountyLCD, NRCS, UWEX
- Develop and enact storm water plans and ordinances in communities that do not already have them in place **Who:** DNR, local governments

**Objective:** Non-native and invasive species threaten to displace plant and animal communities and alter the natural system. These species need to be controlled or eliminated.

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#### RECOMMENDATIONS:

- In conjunction with the Water Resources monitoring strategy, survey aquatic non-native and invasive species problems to determine growth and overall threat. **Who:** DNR, volunteer monitors
- Determine and promote methods, preferably through biocontrol rather than through use of chemicals or machines, to reduce undesirable aquatic plant beds such as Eurasian watermilfoil and purple loosestrife in waters throughout the basin. **Who:** DNR, UW System
- Continue program of prescribed burns to keep invasive and undesirable species from establishing themselves. **Who:** DNR, conservation organizations

**Objective:** Provide educational and informational opportunities for local residents to learn more about watershed ecology and stream protection and restoration techniques.

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#### RECOMMENDATIONS:

- Make basin resource information accessible to all interested citizens through public gatherings, participation in stakeholder meetings, newsletters, and the World Wide Web. **Who:** DNR and basin partners
- Encourage employees to participate in environmental awareness activities sponsored by schools and other groups to encourage knowledge of the environment among young people. **Who:** DNR and basin partners

- Work with schools and state legislators to develop a curriculum activity that supports environmental awareness. **Who:** DNR
- Support the activities of the Basin Educator by providing financial and technical aid for activities such as volunteer stream monitoring, pasture improvement projects, the Water Education Library, and basin-wide seminars. **Who:** DNR and all basin partners

**Objective:** Support and partner with existing and newly forming organizations to encourage land and water conservation efforts.

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RECOMMENDATIONS:

- Assist in the identification, organization, and capacity building efforts of watershed organizations or citizen groups that are allowed to receive and spend funds to further land and water conservation efforts. **Who:** All basin partners
- Assist local communities and groups in writing grants such as TRM and Urban Nonpoint Source grants as well as Rivers and Lakes Grants. **Who:** DNR and other basin partners.
- Continue to bring a wide-variety of stakeholders together to address natural resource and land-use issues. **Who:** All basin partners

**Issue:** Increase recreation opportunities in the Sugar-Pecatonica Basin in order to help people enjoy and utilize the resources available, and to help them develop an appreciation for natural resources.

**Objective:** Increase water based recreational opportunities.

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RECOMMENDATIONS:

- Identify waters within the county with potential to serve as trout streams or other game fish fisheries (smallmouth bass, northern pike, walleye, etc.) and develop a fisheries management plan for those waters with potential for improved fishery resources. See watershed narratives for specific streams. **Who:** DNR Fisheries and Water Resources Management Staff

- Increase recreational opportunities for all people through the purchase and development of bank accessible fishing areas, including handicap access, and boat access sites particularly on the Sugar and Pecatonica Rivers. **Who:** DNR, conservation organizations
  
- Develop new economically viable canoe trails in the basin on the Pecatonica and Sugar Rivers. **Who:** DNR, conservation organizations, Capitol City Paddlers and other private organizations

**Objective:** Increase land based recreational activities

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**RECOMMENDATION:**

Construct and complete trail segments in the basin including the Pecatonica Trail. **Who:** WDOT, DNR, local governments

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**SPECIFIC WATERSHED RECOMMENDATIONS**

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**UPPER WEST BRANCH PECATONICA RIVER WATERSHED (SP 10)**

Water quality of Livingston Branch as indicated by the fisheries community shows the stream to be viable cool-warm system to support a viable fishery. However, historical data show that Livingston Branch could also support gamefish. At a minimum, Livingston Branch meets qualifications as a nursery stream for smallmouth bass given the size of its watershed and proximity to a larger system with good smallmouth bass populations (the Pecatonica River). Limited numbers of smallmouth bass found over the past 30 years and since the priority watershed project show that, while the water quality of Livingston Branch has improved, the stream has not attained its full use. Livingston Branch would benefit from a concerted effort to reduce the remaining sources of nonpoint pollution.

- The DNR, in cooperation with the Iowa County Land Conservation Department, the Natural Resources Conservation Service and other partners should identify best management practices that would improve water quality and consider programs to provide cost sharing to landowners. The key will be to enlist extensive participation in order for the program to be successful.

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#### UPPER EAST BRANCH PECATONICA RIVER (SP06)

- The DNR should review data and consider whether Blotz Branch, Lynch Branch and Urnus Creek should be added to the list of 303(d) impaired waters.
- The DNR and Iowa County LCDs should look for opportunities to work with landowners in the Smith-Conley sub watershed on a consolidated effort to implement BMPs to improve the health of the stream.

#### Dodge Branch:

- Fisheries should continue to evaluate the gamefish potential of Dodge Branch through 2018. At that time management decisions can be made regarding continued stocking of brown trout and/or habitat improvements for both brown trout and smallmouth bass.
- Dodge Branch should be considered as impaired for total phosphorus from the Dodgeville wastewater treatment plant down to CTH Y.
- The habitat impairment for Dodge Branch which currently exists for the entire length of stream should be modified to include only the areas from the headwaters down to CTH W.
- Opportunities exist to improve and protect the health of the stream. The "Southwest Wisconsin Grassland and Stream Conservation Area Report" (Thrall, 2013) outlined specific measures to improve the water quality and overall health of the stream. These measures include:
  - Organize a team of agencies and groups interested in the Dodge Branch.
  - Inventory potential hotspots of sediment and phosphorus runoff, streambanks with excessive erosion, and pastures that are in need of improved management.
  - Contact landowners on a one-on-one basis to get feedback from them and work to implement plans and provide the right technical assistance and funding opportunities.
  - Work with the city of Dodgeville to help them implement storm water runoff management plans.

- Work with the two municipal wastewater treatment plants regarding potential use of adaptive management strategies to meet output goals.
- Evaluate sites that have the best potential for warmwater and coldwater habitat preservation and improvement and obtain easements/purchase on fish project areas if fisheries management determines a sustainable game fishery is viable.
- The box culverts under Blotz Road, as well as the culver under the US151 bypass on the Dodge Branch, create barriers to upstream movement of fish. The department should determine if alternate fish passage can be created around these obstacles in order to facilitate fish movement.

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#### MINERAL POINT AND SUDAN BRANCHES WATERSHED (SP09)

This watershed was identified as one of the top group watersheds for nutrient input by the Wisconsin Nutrient Reduction Strategy. Streams in the watershed should be surveyed and assessed to determine their current status and determine if there are management actions to improve their condition and reduce pollutant (sediment and phosphorus) loads.

In the 20 years that have passed since the remediation of roaster piles near Brewery Creek, the level of lead in the water column has changed very little, but the levels of zinc have decreased substantially. However, zinc concentrations remain above acute toxic criteria. A 2009 survey showed that the fishery has rebounded to some extent.

- The DNR should periodically monitor Brewery Creek to determine if this improvement is a trend in overall improvement of the stream.
- The DNR should monitor waters within this watershed, determine the contemporary status of streams, identify potential sources of sediment and nutrients to those streams, and work with the Iowa County LCD to develop a strategy to address the issues within the subwatersheds through implementation of BMPs in accordance with the Wisconsin Nutrient Reduction Strategy.

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#### GORDON CREEK WATERSHED (SP05)

- The DNR, Iowa County Land Conservation Department, NRCS, and Trout Unlimited should partner to improve streambank protection and habitat in Gordon Creek.

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## YELLOWSTONE RIVER WATERSHED (SP05)

Yellowstone River has been proposed to be added to the list of impaired waters due to a degraded biological community.

- The DNR should monitor waters within the Yellowstone River watershed, determine the contemporary status of streams, identify critical areas in the watershed for streambank protection, upland habitat restoration, and in-stream habitat restoration, identify potential sources of sediment and nutrients to those streams, and work with the Iowa County LCD to develop a strategy to address the issues.
- The department should work with Iowa and Lafayette counties, NRCS, and other interested partners in contacting landowners on a one-on-one basis to get feedback from them and work to implement plans and provide the right technical assistance and funding opportunities to reduce erosion and help improve water quality.
- Develop an education and information strategy to inform landowners about woodlot and streambank pasturing.
- Continue an information and outreach strategy to increase resident awareness of groundwater pollution and the potential for drinking water contamination.

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## OTTER CREEK (LW11)

Otter Creek was confirmed impaired for low dissolved oxygen, physical habitat and non-point source – point source blend with sediment, suspended sediment, ammonia and Bod5 listed as the pollutants. Overall, the stream has been ranked as a high priority for nonpoint source pollution reduction. Significant nonpoint sources of water pollution in the stream's lower reaches include heavy grazing, eroding banks, and barnyards near the creek. In the middle reach of the stream, there are problems with cattle trampling banks and causing erosion and stream sedimentation. Other impairments on the creek are the result of the impoundment in the creek's headwaters. Blackhawk Lake's bottom discharge structure does not effectively reduce water temperatures downstream. Surveys conducted in 1999 and 2000 found a significant increase in water temperatures below the dam and a moderate drop in dissolved oxygen levels and increased ammonia, below water quality standards. In addition, fisheries surveys found few cold water species above the dam and only a warm water forage fish community below the dam, with no intolerant species and few cold water species present. The macroinvertebrate community was very good above the lake and fair below the lake. The lake also experiences algae blooms as a result of nutrient loading. Phosphorus levels exceeded 75 ug/l, throughout the stream, both above and below the lake.

- The department should work with Iowa County and NRCS to identify critical areas in the watershed for streambank protection, upland habitat restoration, and in-stream habitat restoration, identify potential sources of sediment and nutrients, and work with the Iowa County LCD to develop a strategy to address the issues.
- The department should work with Iowa County, NRCS, and other cooperative partners in contacting landowners on a one-on-one basis to implement plans and provide proper technical assistance and funding opportunities to reduce erosion and help improve water quality.
- Work with the Department to revise the dam outlet structure when it is due for replacement to ameliorate poor water quality in the stream segment below Blackhawk Lake dam.

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### BLUE RIVER (LW09)

The Blue River was monitored at six sites in the Blue River in 2007-2011 from Willow Springs Road to Shemak Road, and in an unnamed tributary near the headwaters at Willow Springs Rd. Nitrate levels as high as 24.9 mg/l were found in the stream above Edgington Road, and the riparian area in this vicinity was heavily trampled by cattle, and manure observed in the headwaters. Phosphorus samples collected near the stream mouth showed levels clearly exceeded the phosphorus standard of 75 ug/l. However phosphorus values collected from several sites upstream of Shenak Road, were below 70 ug/l, and biological information indicated the stream segment should remain on the watch list. Physical habitat evaluation indicates stream bank stabilization should be focused in the Edgington Road and Willow Road vicinity.

- Work with landowners to have drinking water wells tested for nitrates in the Blue River Watershed, and specifically in the vicinity of Edgington Road.
- Work with Iowa County to protect infiltration areas above spring heads and headwater tributaries to reduce high nitrates in springs.
- Work with TU Driftless area, the county and township to correct a fish migration block; replace the perched culvert in the unnamed tributary at Willow Springs Rd.
- Focus implementation of streambank stabilization and water quality protection practices in the vicinity of Edgington Road, and in non-easement areas along Willow Springs Road.

### SUGAR-PECATONICA BASIN

The scenic, rolling ridges and valleys of southwest Wisconsin is the setting for the Sugar-Pecatonica Rivers Basin. The Sugar and Pecatonica Rivers drain 1,832 square miles in the Driftless area of Wisconsin. The

two rivers drain another 796 square miles in Illinois (Illinois DNR, 1998). All of Iowa County, and portions of Rock, Dane, Iowa and Lafayette counties are in the basin. All of the water from the streams in the basin eventually flows into the two major rivers that give this basin its name. The Sugar River joins the Pecatonica River just north of Harrison, Illinois where they then flow into the Rock River at Rockton, Illinois. The streams in the basin are part of a larger complex of rivers that eventually flow to the Mississippi River and ultimately to the Gulf of Mexico. As a result, the use of natural resources in Wisconsin has significance on a national and international scale.

### **Geology, Soils, and Topography**

With the exception of the extreme southeast portion, the Sugar-Pecatonica River Basin mostly lies in the unglaciated Driftless ecoregion of the upper Midwest (Albert, 1994), also called the Southwest Savanna and Wisconsin Coulee and Ridges ecological landscape or ecoregion. The “Driftless area” is a region not covered by the continental ice sheet during the most recent great glacial age, which ended 10,000 to 12,000 years ago. This produced a landscape unlike the rest of glaciated Wisconsin. The basin is well dissected by numerous perennial streams and non-perennial drainage ways (Martin, 1965). The terrain varies from gently to moderately rolling hills and local topographic relief can vary up to 300 feet. Smaller streams in the basin tend to have moderate to steep gradients. The entire basin is also characterized by the lack of natural lakes and wetlands; wetland complexes are few in the Driftless region and there are only 13 named lakes in the basin – most of them impoundments on streams. The water quality of these lakes is marginal due to heavy siltation from upland runoff. This siltation usually leads to shallow, mucky ponds with a low diversity of aquatic macrophytes and fish.

Eastern Iowa County and the Rock County part of the basin are in the Southeast Glacial Plains ecological landscape. The Southeast Glacial Plains landscape is underlain by dolomite with some limestone and shale (Ostrom in Albert, 1994). The topography is rolling glacial till and outwash plains dissected by numerous streams. Valleys tend to be broader and streams in this part of the basin do not have the higher gradients of those in the Driftless part. The original vegetation of this part of the basin was a mixture of prairie, oak savanna, and mixed hardwood forests. The most significant wetland complexes are located along the Sugar River.

### **LAND COVER AND DEMOGRAPHICS**

Although much of the basin is rural and agriculture is the primary industry, the northeast quarter is urban or urbanizing because of its proximity to Madison. In fact,

Dane and Rock counties are among the fastest growing counties in the state (Wisconsin DOA, 2000).

#### *Major Vegetative Communities in the Sugar-Pecatonica Basin*

### **THE PAST...**

Prior to European settlement, the vegetative communities of the Southwest Savanna, or the Driftless part of the basin, were dominated by tall grass prairie and oak savanna on the broad ridge tops. Deciduous forests covered the valley slopes and much of the river bottomlands. It is estimated that the pre-

European settlement vegetation in southwestern Wisconsin was a mixture of true forest, open oak forest - oak savannas to forest with light stocking of trees and a grass understory -- and true short and tall grass prairie. These three vegetation types occupied approximately 40%, 40% and 20% of the landscape, respectively (Curtis, 1965). The native tall grass prairie, and oak savanna with its deep root system and wooded slopes, promoted infiltration of meltwater and rainwater into groundwater which provides a major part of the base flow for streams in the basin. Fires greatly influenced the pre-settlement landscape of the Southwest Savanna part of the Sugar-Pecatonica Basin. These fires, both natural and Native American set, were the controlling force on the maintenance of the prairie-hardwood flora. These fires, and to some extent, browsing by bison and elk, maintained the early successional vegetation (prairie grasses and oak forest types) throughout the basin (Amiel, 2000).

The pre-settlement landscape of the Southeast Glacial Plains portion of the Sugar-Pecatonica basin were dominated by a mosaic of oak savannas, prairies and southern hardwood forests. Additionally, there were more extensive lowland hardwood forests and sedge meadows near streams in this part of the basin.

## THE PRESENT...

The clearing and farming of the land has resulted in a vegetative community much different from that here over 150 years ago. Today, only a fraction of the original vegetation that once covered much of the basin remains. European settlement resulted in breaking up of the prairies and the cutting down of much of the forested areas, and replacing it with cultivated fields and pastures. This has resulted in reduced soil infiltration capacity (Knox, 1977). Only small remnant prairie areas remain today, usually along railroad right-of-ways, or in areas which escaped long term continuous cultivation. Some remnant areas of hardwood forest and relic mixed pine remain in the basin, often found on the steeper slopes where cultivation is impracticable (Albert, 1994).

### **Agriculture**

The Sugar-Pecatonica Basin has some of the most productive farmland in Wisconsin. Most of the agricultural activities in the Sugar-Pecatonica Rivers Basin are dairying, cash cropping and livestock feeder operations. The county production numbers and rankings point out the importance of farming to the local economy. According to *"1999 Wisconsin Agricultural Statistics"* (WDATCP, 1999), Dane County ranked number one in the state in the production of corn, second in soybean production, and third in total milk production. Lafayette, Green and Rock counties also ranked in the state's top ten producers in one or more categories (WDATCP, 1999). Dane, Green and Lafayette counties were in the nation's top 100 counties having farms with sales of \$100,000 or more (USDA, 2000).

The trend both nationally and statewide is towards fewer but larger farms. Indeed, the number of farms has decreased statewide by 3.8% since 1990 according to *"2002 Wisconsin Agricultural Statistics"*. However, this trend has not been reflected uniformly across the basin. According to the U.S. Department of Agriculture's 1997 Census of Agriculture, the number of farms in Dane, Rock and Lafayette counties declined about 4.3% between 1992 and 1997. During the same period of time the number of farms increased 3.5% in Green and Iowa counties. This increase may be due in part to the influence of "hobby farms" which have become more popular in the area. The total amount of land in farms decreased in Dane and Lafayette counties, and increased in Green, Iowa and Rock counties. Also, average farm size

decreased in Dane and Iowa counties and increased in the other three counties. While the total number of farm animals in the basin declined over the last 20 years, there is greater concentration of animals in a given location, based on data from the U.S. Department of Agriculture's 1997 Census of Agriculture (USDA, 1997). This trend can affect the environment in several ways. First, a major malfunction in manure storage could have catastrophic effects should the manure reach a waterway. Second, manure management becomes more cumbersome in that large tracts of land are needed near the farms to properly dispose of the manure while properly balancing nutrient management needs.

For a variety of reasons, there has been an increasing trend of planting of row crops such as corn and soybeans over the past several years (Dane Co. LCD, 2003). In 2001 farmers planted a record 1.6 million acres in soybeans in Wisconsin (WASS, 2003). Lands that were usually planted or rotated in hay are now annually being planted in row crops. Typically, as the acres planted to a continuous row crop rotation increase and the acres in hay decrease, soil lost to sheet and rill erosion will increase. This may offset some of the gains made by having increased acreage in the Conservation Reserve Enhancement Program (CREP) or Conservation Reserve Program (CRP). Other measures such as reduced tillage practices (mulch till and no till), incorporating small grains into the crop rotation, or installing grass buffer strips may need to be applied.

### **Urban Areas**

The Sugar-Pecatonica Rivers Basin encompasses the rapidly growing southwest quarter of Dane County including the southwest side of Madison, the cities of Verona and Fitchburg, and the town of Middleton and village of Mount Horeb. A recent study by Wisconsin DNR scientists showed that instream cover and fisheries of streams begin to be adversely affected when urbanization reaches 10% of the contributing watershed surface area (Wang, et al., 1997). Stream ecosystems were severely affected when urbanization within the watershed reached 30% of the watershed area. This is consistent with other studies done around the country that have shown a correlation between increasing impervious surface area and decreasing water quality and instream habitat conditions (Schueler, 1994). Sixteen percent of Dane County's lands are now developed.

The population of Dane County grew by 16% since 1990 to a population of 426,526 in 2000. While the city of Madison grew at a modest rate of 9.1% during that same period, the surrounding municipalities of Fitchburg, Verona, and Mount Horeb grew by 31.0%, 31.2% and 40.1%, respectively (WI DOA, 2000). Other major cities and villages in the basin are Monroe, Belleville, Blue Mounds, Barneveld, Ridgeway, Dodgeville, Mineral Point, Hollandale, Cobb, Darlington, Argyle, Blandchardville, Gratiot, South Wayne, New Glarus, Albany, Monticello, Browntown, Juda, Brodhead, and Evansville.

## LWRM PLAN PRIORITIES

The Local Work Group (LWG) reviewed the County's Citizens Advisory Committee's (CACs) survey responses, comments and recommendations related to resources protections/concerns to set the Ten Priorities for the new Land and Water Plan required by the State Department of Agriculture. The top ten priorities are:

1. *Soil Erosion*
2. *Ground Water*
3. *Animal Waste Management*
4. *Nutrient Management*
5. *Forestry*
6. *Riparian Corridors*
7. *Agriculture Productivity*
8. *Rural Land Use Issues/Conflicts*
9. *Agriculture Sustainability*
10. *Loss of Ag Lands*
  - **ADDITIONAL EFFORT:**
    - **EDUCATION AND OUTREACH**
    - **CONCERN FOR LARGE FARMS**

Along with the growing concern of Large Farms, these priorities will be the 'backbone' of the new LWRM Plan and will be explained in more detail. Topics that could be discussed on each are such things as:

- Past practices done by the Iowa County Land Conservation Department
- Programs that should or could be utilized to address each item
- New ideas to be worked on
- Goals
- Information and education strategies (stressed by LWG)
- Other agencies and/or groups to help achieve goals Iowa County's LWRM plan priorities and goals will be evaluated annually and progress tracked through annual accomplishment reports.

## I. SOIL EROSION

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Soil erosion control has always been a significant concern in Iowa County. Over the years Iowa County landowners have implemented a wide variety of soil conservation measures. Landowners have had, in the past, numerous financial programs to work with. Some examples of these are: The Land and Water Resources Management (LWRM), Farmland Preservation Program (FPP)/Working Lands Initiative (WLI), Environmental Quality Incentive Program (EQIP), Conservation Reserve Program (CRP), Conservation Reserve Enhancement Program (CREP), etc. Priorities and standards related to soil erosion have been and will continue to be:

### 1. CONTROL SOIL EROSION TO “T”

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Write conservation plans to meet the erosion rate “T” and not use alternative planning. FPP is and will continue to be a way to utilize the reduction of soil loss when writing conservation plans. The LCD will continue to monitor 25% of the over 650 FPP conservation plans on file with the program participants. These 650 participants represent a approximately 48% of those eligible for FPP.

### 2. CONTOUR STRIP CROPPING, CONTOUR FARMING AND GRASSED WATERWAYS

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Grassed waterways are practices have been the backbone of erosion control practices installed. Maintenance, as well as the installation of new waterways will be encouraged and promoted.

### 3. PROMOTE NO-TILL PLANTING, CONSERVATION TILLAGE, LONGER

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Education and encouragement must be going to farmers as to the benefits of leaving residue on the soil surface. Education must be stressed on the difference between no-till, conservation tillage and minimum tillage. Promotion of growing shorter number of years of commodity crops (corn and soybeans) in a rotation and more years of alfalfa must be done. Rotational grazing is a way to reduce soil erosion, with less chemical use, increasing the bird habitat and improving water quality.

### 4. CONTINUE TO CONDUCT THE IOWA COUNTY TRANSECT SURVEY

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This survey is a “true report card” of conservation priorities and trends of the County. The survey records over 700 points of land use, crops, and tillage, conservation and management practices. The Transect Survey will be done every

other year (odd numbered years). The results will be sent to DATCP for compilation and analysis.

## 5. ONE ON ONE CONTACTS

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Iowa County will notify landowners of any determination of non-point source pollution as well as soil loss through the process of conservation plan preparation. These individual meetings will allow for in-depth discussion of soil erosion problems and conservation priorities. County, State and Federal programs are explained at this time along with eligibility requirements of each program. During this meeting, owners and operators have the opportunity to request an on-site visit to verify the soil loss calculation as to their land for our recommendation. Priority farms will be given special focus in the one-on-one farm contacts.

## 6. SOIL EROSION CONTROL

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(See Erosion Control items mentioned later in this Plan as they relate to NR 151 Site Inventory and Evaluation reviews.) There are some things that could really jeopardize current efforts in Iowa County to meet the goal of “T” in Ag lands. The “stars are in line” to possibly fall behind in controlling soil erosion. They are:

- Use Value Tax Structure, idle land is taxed higher than “farmed land”
- Loss of dairy cattle and smaller farms leasing the land for hay in rotation and contour strip layouts
- More demand for bio-fuel commodity crops corn and beans for ethanol and bio-diesel
- 30,000 acres that have come out of CRP which has created critical challenges

## 7. PL-566 FLOOD CONTROL STRUCTURES

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Iowa County has 11 PL-566 flood control structures. These structures function to control flooding and erosion to stream banks and flood plains. This is a long-term and potentially very expensive effort of maintenance. Risk/benefit of the PL-566 structures will be evaluated as they age.

## 8. PARTNERSHIP EFFORT

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Iowa County has partnered with SW Badger, RC&D and the Grazing Broker effort is a great soil saving use and protection of groundwater.

## II. GROUNDWATER QUALITY/PROTECTION

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Iowa County has a Groundwater Study—based on this information and working with UW-Extension—the LCD will undertake an aggressive effort to assist landowners in the proper standards of decommissioning unused wells. Cost sharing money is available through LWRM and EQIP funds. The LCD has assisted over 200 landowners in the proper decommissioning of their wells since 1990. It is thought there are hundreds more yet to be decommissioned.

### 1. WELL DECOMMISSIONING DEMONSTRATIONS

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Demonstrations will be conducted for the public, in partnership with UW-Extension.

### 2. EDUCATION EFFORTS

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Educate landowners through news articles, mailings, demonstrations, event displays, and presentations on the importance of their groundwater and the proper abandonment of unused wells they may have on their property.

### 3. WELL SAMPLING PROGRAM

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The LCD and UW-Extension will promote a well sampling program. Most landowners do not realize they should test their wells every few years. There are many Wisconsin wells that have contaminants in the groundwater that exceed State and Federal limits for drinking water.

### 4. ADDRESS WATER QUALITY AND HIGH CAPACITY OUTPUT WELLS

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The County's groundwater study will help evaluate the feasibility of groundwater quality and capacity as it relates to future aquifer demands.

### 5. INVENTORY PROPERLY DECOMMISSIONED WELLS

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They will be recorded as LWRM cost share files and as GIS layer (as it is developed by LCD staff).

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### III. ANIMAL WASTE MANAGEMENT

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Animal Waste Management as defined by the LWG – as livestock waste as generated, handled or stored on a farm. Obviously there will always be waste generated by animal agriculture, how it is handled (i.e. traditional daily spread or stored as herds get larger) and stored is a major challenge.

#### 1. MANURE STORAGE, UTILIZATION AND ABANDONMENT ORDINANCE

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Iowa County has had this ordinance in place since 1999. This ordinance is serviced, permitted and enforced by the Iowa County Planning and Zoning office with technical assistance by the Iowa County Land Conservation Department. Copies or information on local ordinances related to FPP or Manure Storage can be obtained at the Iowa County Planning and Development Office. This ordinance also requires a Nutrient Management Plan.

#### 2. BARNYARD RUNOFF

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Over the past years, numerous runoff control systems have been installed with cost sharing through State and Federal funds. These projects were expensive, time consuming and do not change the main challenge of a farmer's management practices. Operation of barnyard runoff control projects is a major concern when evaluating cost share options and for compliance with FPP/Working Lands Initiative.

#### 3. EDUCATION

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The Iowa County LCC and LCD will work to educate farmers and landowners about the State's four animal waste prohibitions and assist them in their responsibilities in meeting the prohibitions included in NR151 and WLI/FPP – which are:

- a. Livestock operators may have no overflow of manure structures
- b. Livestock operators may have no unconfined manure piles in a Water Quality Management Area (WQMA)
- c. Livestock operations may have no direct runoff from feed lots or stored manure into the waters of the State

- d. Livestock operations may not allow unlimited access by livestock to the waters of the state in a location where high concentrations of animals prevent the maintenance of a adequate seed cover.

#### 4. WEATHER ALERTS

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The Iowa County LCD will arrange and forward to our local radio station, D99point3, the Weather Alerts from DATCP. These are very practical alerts that help farmers be aware when weather conditions are 'wrong' for manure spreading. This is a very proactive way to help protect against runoff.

#### 5. AG SITING STATUTE

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The County Planning and Zoning committee have considered the State's Ag Siting Statue. The LCD has assisted and will continue to provide technical assistance to the Planning and Zoning committee on items related to animal units, odor index calculations, etc. Relevance of giving up local control is a concern. Many of the issues related to Animal Waste Management will be addressed in the NR 151 Farm Inventory and Evaluation process (see later in the plan).

### IV. NUTRIENT MANAGEMENT PLANS

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Nutrient Management from Animal Ag operators is an ever growing concern in Iowa County due mainly to two key reasons; farmers getting larger and more people moving into the country having concerns of land spreading of farm wastes. Guidelines and management plans should be developed to reduce environment risk.

The following are LCD efforts:

#### 1. WEATHER ALERTS

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The weather alerts will be continued to be aired as soon as issued.

## 2. NUTRIENT MANAGEMENT PLANS

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The LCD will work to help educate farmers on the usefulness and cost savings of following a nutrient management plan (NMP). Cost sharing money has been made available through DATCP SEG Funds and USDA EQIP funds (the EQIP NMP cost share are included in the Comprehensive Nutrient Management Plans). All NMPs will be required to be written to the USDA NRCS 590 Standard (most current). The NMP can be written by trained landowners or certified professionals. The LCD's role in this NMP process is providing restriction maps (using USDA's photo base), cost share contracts when available, and holding completed NMPs on file. (NMP requirements are listed in the NR 151 Inventory and Evaluations Review.)

## 3. NMP COST SHARING

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In 2015 Iowa County LCD has secured \$40,000.00 of LWRM funds. The LCC is very concerned that cost share funds and LWRM contracts for NMP may not be utilized due to perpetual landowner signoff requirement. However, the FPP compliance deadline has created demand for NMP cost share funds.

## 4. EXISTING NMPS

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There is an issue with existing NMPs that have been done voluntarily and at their own costs by county farmers. An existing NMP could bring a farmer into compliance, but there is concern that a farmer will need to know if the existing NMP is considered compliant. The farmer would waive future cost share and will be required to have 'compliance forever.' The LCD will be very sensitive to inform the farmer of this issue and also secure approval from farmers on information sharing (i.e. NRCS files).

## 5. ADAPTIVE MANAGEMENT

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Grassed waterways, Riparian Buffers and NMP with farmers will be a key component of adaptive management of the phosphorus trading between municipal waste water treatment standards and farmers.

## V. FORESTRY

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In Wisconsin 1 in 6 jobs are directly related to forestry. With 75-80% of the northern half of the County covered in trees and some of the southeastern townships are moving away from the traditional agricultural uses – planting trees and enrollment into the Managed Forest Law Program has been very popular. In the last 20 years in cooperation with the DNR – LCD – FSA. Many landowners have planted trees. In some of the CRP signups, as many as a half a million trees and shrubs were planted during spring season. The Iowa County LCD owns and maintains 3 tree planters, which the DNR personnel offer to landowners for their plantings. (In addition, LCD technical assistance has been used by landowners for such things as logging road designs, stream crossings, stabilization of staging areas, etc.)

Because of the make-up of the woodlots in Southwestern Wisconsin the value per acre exceeds the state average many times over. It is a true reflection of high value hardwood native woods and chosen species of recent plantings. For example most recent planting consist of oaks (red and white), blackwalnut, black cherry and hickory. (See work plan for cooperative interagency efforts.)

## VI. RIPARIAN CORRIDORS

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## 1. CREP PROGRAM

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Riparian corridors are also referred to as Stream Buffers. Stream buffers are the main practice under the popular Conservation Reserve Enhancement Program (CREP) of which all streams in Iowa County are eligible for enrollment up to 150 feet on each side. The enrollment buffer distance can extend out to 1000 feet if the land has a crop history and is HEL in certain areas of the County. Those areas are the Blue Mound/Thompson Prairie which is located in South Brigham and Ridgeway Townships – all of Moscow, Waldwick, Mineral Point and Linden Townships. Iowa County has the second highest enrollment in the CREP program in the state. Many landowners have utilized CREP to buffer streams with a 15 year contract. But enrollment in permanent easements has been less popular, with reluctance of landowners because of easement limitations after the core 15 year contract – most particularly, the reluctance of DATCP to allow conventional or conservation farming practices. Many feel past CRP uses should include farming practice that meet “T” while following BMP while recognizing P.C.E. development restoration. (The work plan will identify County inter-agency efforts.)

## 2. LWRM COST SHARE

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Other riparian corridor protecting efforts will be achieved as it has been in the past with the use of LWRM cost share practices – in particular, rip rap and cattle/machinery crossings. Rip rap is a very expensive practice. The Iowa County LCC has limited LWRM cost share to the protection of “agriculture infrastructure” and crossings. Even with the policy in place, the LCC has partnered with landowners and others, privately the Harry and Laura Nohr Chapter of Trout Unlimited – to create Ag protection and fish habitat improvement projects. This cooperation will most likely be continued, because it is a great way to leverage funds and create a ‘win-win’ landowner project and public fishing opportunity.

## VII. AGRICULTURE PRODUCTIVITY

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Agricultural productivity – “keeping farmers farming”, has always been a mission of the Iowa County LCC/LCD. Many factors of agriculture productivity is management based – however, keeping soil

in place, effective use of nutrients and clean surface and groundwater resources are efforts the LCD can assist farmers with. The following BMPs (Best Management Practices) can be used to address the concern.

#### 1. KEEP SOIL IN PLACE

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Farm to meet “T” using contour strip cropping, contour farming, residue management, no-till systems, grazing, etc.

#### 2. EFFECTIVE USE OF NUTRIENTS

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Encourage farmers to develop and follow a NMP. With the development of a NMP (with an offer of cost share) should help farmers in the efficient application of manure or commercial fertilizer – therefore not spending more on nutrients that are not needed by the crop and a protection for our surface and ground waters.

#### 3. CLEAN SURFACE AND GROUND WATER

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By keeping soil in place many elements of protecting surface water can be met. Keeping that water clean reduces the chance of water borne diseases. In addition, cattle watering and spring development projects have been cost sharable through LWRM and EQIP and most likely will continue to be popular with farmers having cattle on their farms. Groundwater can best be protected by following a NMP and limiting over application of nutrients and the proper decommissioning of unused wells. Most of these issues are addressed technically, in the NR 151 Inventory and Evaluation review process. Also, the implementation and compliance with the FPP/WLI.

#### 4. WILDLIFE DAMAGE

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Damage to crops due to wildlife does affect productivity of some farmers. The County will continue to work with USDA, APHIS and DNR on issues (i.e. Damage claims, deer harvest, and venison donation).

## 5. GRAZING BROKER EFFORT

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The Grazing Broker effort is a great way to match cattle with grass for sustainable production and environmental protection. This item is supported by Iowa County with the Southwest Badger RC&D effort.

## VIII. RURAL LAND USE ISSUES/CONFLICTS

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As mentioned, Iowa County is a “County in Transition” from being dominated by traditional smaller family farms to “non-ag residents and larger farming operations – these folks might be “fence line” neighbors. The urban-ruralite or rural urbanite is commonly very concerned with the use of the land. However, differences between farmers and non-farmers can be a challenge for both parties.

Rural subdivisions may result in loss of cropland available for rent. Rural nonfarm residents may not understand fencing laws or how to cope with nearby farming operation activities.

The LCD has ordered and distributed to realtors, bankers, township offices, and the Iowa County Office of Planning and Development Office a publication entitled “Partners in Rural Wisconsin” to help

educate neighbors and to help appreciate their differences. This booklet is authorized by diverse groups, all interested in easing the differences and attempting to avoid conflicts between the “new neighbor groups.” In the past, over 500 copies have been ordered and distributed by the LCD and this effort will continue as the County ‘mutates into a new countryside.’

In addition, cooperation between the LCD and the Planning and Development Office will share such things as soils information, groundwater resource information, siting issues, etc.

## IX. AG SUSTAINABILITY

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Sustain (i.e. to keep up or keep going) agriculture, to evaluate as to whether the ag is “keeping up” in Iowa County we need to compare what it was like in the past vs. what ag presence is now. In reference to the DATCP Ag Statistics Source the following was documented (see chart on page 42).

## DATCP AG STATISTICS

	2006	2014		Percent Change
<b>Number of Farms</b>	There are over 3,281 LCD farm files.	There are over 3,400 LCD farm files.		+4%
<b>Average Size of Farm</b>	N/A	250 ac		
<b>Corn</b>	67,000 ac	90,000 ac		+34%
<b>Soybeans</b>	29,400 ac	32,500 ac		+11%
<b>Hay</b>	59,400 ac	41,400 ac		-30%
<b>Oats</b>	8,400 ac	8,400 ac		0%
<b>Barley</b>	Winter wheat 2,100 ac	3,900 ac		+85%
<b>Acres in Crops</b>	166,300 ac	198,162 ac		+31,800 ac +19%
<b>CRP</b>	Est. 40,000 ac	Est. 15,000 ac		-25,000 ac -38%
<b>Cattle (all cows &amp; calves)</b>	87,000	90,000		+3,000 +3.5%
<b>Milk Cows</b>	24,500	23,500		-1,000 -4%
<b>Milk Avg/Cow</b>	17,500 lbs/yr	21,239 lbs/yr		+21%
<b>Dairy Herds</b>	296	Est. 180		-116 -39%
<b>Size of Dairy Herd</b>	N/A	118 State	117 Iowa County	N/A
<b>Hogs</b>	12,000	N/A		N/A

To compare these statistics, animal Ag seems to be going down. However, cropping type Ag is sustaining or increasing itself. A shift of types of Ag has occurred, reflecting the change in demand for certain crops and with the growing demand for bio-fuels loss of hay and more acres of corn and beans most likely will continue to occur. This shift will present a challenge to maintain or improve soil erosion standards.

Many ideas of Ag sustainability also relate to “low impact Ag uses” i.e. grazing. This type of farming is growing in dairy operations in Iowa County. Transitions to grazing happen, however confined larger operations are going at about the same rate especially in high value neighborhoods and soil types. Grazing of beef herds has always been a popular activity in Iowa County. Better watering systems is a key component in profitable grazing operations.

“Growing what is needed and feeding what is grown on a farm”, has always been a goal of sustainable agriculture. This is still very common on many animal agriculture operations in Iowa County – again, as dairy herds decline – hay in rotation is declining, presenting conservation compliance challenges.

## X. LOSS OF AGRICULTURAL LANDS

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As the County “transitions” from the traditional smaller family farms to part time, absentee, hobby farming or recreation use, it results in smaller parcels with fragmented ownership resulting in differing land management decisions.

In reviewing the DATCP Ag Statistics, cropland is declining by about 4% to 198,162 acres (1980-2010). Therefore, loss might not be as big of an issue as access to land because of the fragmentation of ownership. Farmers that rent will have to be sensitive of landowner concerns while negotiating leases (i.e. Conservation Plans, Nutrient/Pesticide Application, Operating Hours, Traffic, etc.).

Also, see previous item IX. Ag Sustainability for statistics related to agriculture lands/agriculture activity.

## ADDITIONAL EFFORTS



### • EDUCATION AND OUTREACH

Education was identified as an underlying issue related to all priorities – therefore, the following is a documented strategy to help our landowners learn about resource concerns, NR 151 responsibilities and implementation opportunities:

#### 1. IOWA COUNTY DAIRY BREAKFAST

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Attend and have an education presence at the Iowa County Dairy Breakfast held each June. Attendance is usually over 2,000 people.

#### 2. GROUNDWATER

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Continue working with UW-Extension on groundwater education and on well decommissioning demonstrations.

#### 3. IOWA COUNTY FARMERS APPRECIATION DAY

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Have an Iowa County Land Conservation Department display and NR 151 educational materials at the Iowa County Farmers Appreciation Day dinner/program held each July. Attendance is usually between 2500-3000 people.

#### 4. IOWA COUNTY FARM BUREAU MEETINGS

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Attend and give an update at the Iowa County Farm Bureau Monthly meeting in March and Annual Meeting in October. Attendance is 50-100 farmers.

#### 5. NEWSLETTER AND LCC ANNUAL REPORT

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Develop a LCD-USDA conservation specific newsletter/ mailing using the FSA addresses – which includes 3300 to 3400 landowners. In the mailing, conservation compliance issues will be stressed along with technical and cost share opportunities. The plan is to produce at least two newsletters a calendar year. Also, the LCC/LCD Annual Report will be published and posted on-line for public review.

#### 6. UW-EXTENSION NR 151 ITEMS

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The LCD will continue to work with extension on NR 151 educational items and for Nutrient Management Plan farmer training sessions.

### ADDITIONAL EFFORTS

- CONCERN FOR LARGE FARMS

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During the CAC and Public Survey there are concerns about bigger farms whether it be larger cropping or animal operations. Issues connected with growth are soil erosion and nutrient storage and utilization which are growing social and environmental concerns.

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## TO THE IOWA COUNTY LCC

The Local Work Group (LWG) got together, reviewed the County's Citizen Advisory Committee's (CAC) survey and comments to set the "10 Priorities" for the new 10-year Land and Water Resources Plan (LWRM) required by the State Department of Agriculture.



The top ten priorities:

1. Soil Erosion
2. Water Quality (Groundwater)
3. Animal Waste (Management)
4. Nutrient Management
5. Forestry
6. Riparian Corridors
7. Agricultural Productivity
8. Rural Land Uses Issues/Conflicts
9. Agricultural Sustainability
10. Loss of Agricultural Land
  - Additional Efforts
    - Education and Outreach
    - Concern for Large Farms

These items will be the 'backbone' of the new LWRM plan and workload focus for the next 10 years. Integrating the State's NR 151 and ATCP 50 rules will be a must for Iowa County to be able to continue to receive financial support for landowner cost sharing and department staff and support.

We are planning to submit a draft of the LWRM Plan to DATCP in July or August for an initial review with final approval scheduled for December with implementation to start in 2016.

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## NR 151 PERFORMANCE STANDARD

Wisconsin's rules to control polluted runoff from farms, as well as other sources, went into effect October 1, 2002. The State legislature passed the rules to help protect Wisconsin's lakes streams and groundwater.

DNR Administrative Rule NR 151 sets performance standards and prohibitions for farms. It also set urban performance standards to control construction site erosion, manage runoff from streets and roads and manage fertilizer use on large turf areas.

DATCP Administrative Rule ATCP 50 identifies conservation practices that farmers must follow to meet performance standards in NR 151. ATCP 50 also sets out the requirements for nutrient management plans.

What does this mean to Iowa County and our Land Conservation Department? The LCD has long been recognized as the primary tool to bring these water quality performance standards into the field. The Department of Land Conservation will have the primary responsibility for the implementation of the agricultural runoff standards. The major transition found in NR 151 is that it truly moves the majority of Non-Point Source (NPS) water quality work in Wisconsin from a mostly voluntary program to a program based largely on landowner participation through the option of regulation. NR 151 lays the foundation for minimal expectations in regards to land use and management practices within the agricultural landscape. Many of the issues we have identified and worked through in the past are now part of this rule which sets out the opportunity for regulation if minimum levels of implementation are not reached.

A component of the plan requirements for the approval of this plan is the inclusion of a local strategy for the implementation of NR 151. The following are the performance standards in NR 151:

**For farmers who grow agricultural crops:**

1. Must meet tolerable soil loss ("T") on all cropped fields
2. Follow a nutrient management plan designed to limit entry of nutrients into state waters (ground water and surface water). NMP plan must be in place by Jan. 1, 2005 for high priority waters (303d, outstanding/exceptional) and Dec. 31<sup>st</sup>, 2015 for FPP participants

**For farmers who raise, feed or house livestock:**

1. Prevent direct runoff from feedlots or stored manure into state waters

2. Limit livestock access to state waters to avoid high concentrations of animals and maintain adequate or self-sustaining sod cover along waterways
3. Follow a nutrient management plan for manure application

**For farmers who have or plan to build, a manure storage structure:**

1. Maintain structures to prevent overflow (no overflow)
2. Repair or upgrade any failing or leaking structures that pose an imminent health threat or that violate groundwater standards
3. Close abandoned manure storage structures according to accepted standards
4. Meet technical standards for newly constructed or substantially altered structures

**For farmers with Land in a Water Quality Management Area (300 feet from a stream, 1000 feet from a lake, or in areas susceptible to groundwater contamination):**

1. Do not stack manure in unconfined piles
2. Divert clean water away from feedlots, manure storage areas and barnyards located within this area

**Nutrient Management Plans for Livestock and Crop Farmers:**

1. Plans can be developed by a certified agronomist or prepared by the farmer through a DATCP-approved training course with UW-Extension
2. Plans must rely on soil nutrient test from a DATCP-certified laboratory
3. Comply with current NRCS Nutrient Management Standard 590
4. Follow the recommendations for nutrient applications in the Soil Test Recommendations for Field, Vegetable and Fruit Crops, UWEX publication A2809.

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## **LOCAL IMPLEMENTATION**

The Iowa County Land Conservation office will take the lead role in the implementation of NR 151. We will be working in close cooperation with the Department of Natural Resources (DNR) and other agencies towards a practical implementation process that serves all involved. Regulatory and enforcement activities described under this section will be completed utilizing the following; NR 151, ATCP 50, Iowa County Manure Storage and Utilization Ordinance, Iowa County Private Water Ordinance, and Iowa Counties Soil and Water Conservation Standards for the Farmland Preservation Program.

It should be noted that the implementation of each component of the Iowa County Land Conservation Departments strategy to implement the NR 151 Performance standards is dependent on receiving

adequate funds to cover both staff resources and cost sharing resources. It is anticipated that DNR and DATCP will be the major financial resources we will look for partnership in this process. The DNR will draft a memorandum of understanding that outlines Iowa County LCD and DNRs responsibility in enforcing NR 151.

The goals of the Iowa County Land and Water Resource Management Plan will be accomplished through coordination with local, state, and federal agencies and private organizations. Iowa County attempts to make the best use of all resources in addressing conservation issues. Program issues and ideas are discussed frequently with staff from all agencies. Following are resources used for conservation efforts in Iowa County:

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#### **USDA PROGRAMS**

1. Environmental Quality Incentives Program (EQIP). Provides cost sharing for a variety of conservation practices (see BMP definitions in appendix) to address erosion and nutrient management issues.
2. Wildlife Habitat Incentives Program (WHIP). Provides cost-sharing for fish and wildlife habitat improvement practices.
3. Conservation Reserve Program (CRP). Provides incentives to set aside land for conservation purposes.
4. Conservation Reserve Enhancement Program (CREP). A multi-agency effort (DATCP, FSA, NRCS, and Iowa County) that provides incentives to create buffers along streams and waterways.
5. Grassland Reserve Program (GRP). Provides incentives to manage permanent pasture and hay land.
6. Wetlands Reserve Program (WRP). Provides cost-sharing to restore wetlands previously altered for agricultural use.

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#### **DNR PROGRAMS**

1. Targeted Resource Management Program (TRM). Provides grants for a variety of conservation practices to address severe water quality problems.
2. Managed Forest Law (MFL). Provides a tax incentive in exchange for long term sound forest management.

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#### **DATCP PROGRAMS**

1. Soil and Water Resource Management (SWRM). This program provides grants to Counties to hire staff and to cost-share the installation of conservation practices on private land.

2. Farmland Preservation Program (FPP). This program provides State tax credits to farmers when they meet conservation compliance.
3. Conservation Reserve Enhancement Program (CREP). This program will help protect Riparian areas in Iowa County.

The County's commitment to extend services beyond that core levy commitment will be dependent based upon its ability to secure funds through outside grant sources and its capacity to secure funds through other non-levy revenue, including reimbursement through local service fees or municipal, State, or Federal service contracts. Priorities for plan implementation and associated service levels will be set based upon the availability of this combination of revenue sources.

At present, the demand for program services exceeds the capacity of current allocations. It is anticipated that the level of State staff funding support, administered to the County through DATCP and DNR grant programs, will be reduced in the 2015-2016 biennium. An increase of support to Iowa County would be expected as workload increases and DNR watersheds close out. It is also anticipated that new sources of revenue staff funding may be available through federal service contracts or through direct service fees, charged to participants who participate in State or Federal conservation programs.

## LOCAL PROCESS COMPONENTS

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### ***Definition of a Priority Farm***

Priority farms are:

- Farms in watershed draining to DNR listed as "Impaired Waters Section 303(D) or "Outstanding and Exceptional Resource Water";
- Farms with livestock or that have significant manure management problems;
- Farms making clearly excessive nutrient applications; or
- Farms with clearly excessive rates of cropland erosion.

The implementation of this strategy is based on staff and funding availability. Please see the following map for Iowa County 303(d) Waters.

## INFORMATION AND EDUCATIONAL ACTIVITIES

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The LCD realizes the implementation of the Performance Standards will require a large amount of emphasis in regards to educating landowners within Iowa County. The LCD will distribute information and educational material from various sources such as DNR, DATCP, NRCS, FSA, and LCD to affected

landowners. We will use a series of direct mailings, newsletters, radio programs, workshops, and on site visits as our avenue for information distribution.

Our educational materials will be designed to accomplish the following:

1. Educate landowners about Wisconsin's agricultural performance standards and prohibitions, county ordinances, applicable conservation practices and funding opportunities;
2. Promote voluntary implementation of conservation practices necessary to meet standards and prohibitions;
3. Inform landowners of requirements and compliance procedures and the role the LCD will have within those procedures;
4. Make landowners aware of expectations for compliance and consequences for non-compliance.

## MONITORING AND EVALUATION

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The evaluation and long term monitoring of this plan will include several approaches. Many of the goals and objectives will be easily measurable within a given time frame. Evaluation of things such as the acres of grassed waterways installed or the number of wells properly abandoned are all things that can be measured and used in evaluation of the effectiveness of this plan. The annual report submitted to DATCP during our application/report process will serve as a monitoring mechanism. These tangible measurements and their successes and or failures will be discussed and reviewed fully.

The use of nonpoint source inventories will also be used in monitoring and evaluating our plan and future plan objectives and goals. The LCD continues to conduct an annual Transect Survey looking at cropland erosion trends; we will continue to use this as a measurement tool. The transect survey will be conducted every other year during the spring season (May-June) with data submitted to DATCP for software evaluation and erosion levels summarized. This DATCP transect survey report will be used to evaluate erosion trends and workload efforts with landowner conservation plan implementation. Also, the LCD will continue to monitor the FPP program through farm visits annually on 25% of the participants – scheduling 5 year compliance with NR151 standards where applicable (continuing with 2016 visits).

In addition, the Iowa County LCD/LCC Annual Report will continue to be published for all County Residents, a Report will also be given to the County Board of Supervisors and forwarded to the Department of Ag, Trade and Consumer Protection.

Monitoring the effectiveness of information and educational goals and objectives within this plan will prove to be challenging. The ability to make direct connections with these types of initiatives will need to be accepted through increased measurements in other areas of program responsibility. Although the value of information and education is often overlooked and tough to measure, the LCD believes good connections can be made to other measurable program goals and objectives. A County software program will be attempted to be designed to track and report progress in the implementation of NR151 standards and prohibitions especially with FPP participants.

#### FINANCIAL CONSIDERATIONS WITHIN NR 151

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Many farmers voluntarily install many conservation practices on their farms to help improve water quality and wildlife habitat and to help prevent soil erosion. Cost share dollars will still find priority with landowners looking to voluntarily implement Best Management Practices (BMPs) on their lands. Iowa County will continue to offer voluntary cost sharing as program funds and priorities become available.

The agricultural performance standards and prohibitions found in NR 151 require 70% cost sharing be offered to change an existing cropland practice or livestock facility to bring them into compliance with the new standards. The opportunity exists for an increase to 90% cost sharing if economic hardship is proven. It is attempted that Iowa County LCC may offer cost sharing twice to a landowner to meet compliance.

The cost sharing requirements for compliance applies to sites found not to be in compliance. This excludes nutrient management which has its own timeline related to geographical location, which was covered earlier in this section. Farmers who are in compliance on or after that date do not have a right to cost sharing if they later fall out of compliance. Farmers who establish new facilities may be eligible for cost sharing, but cost sharing is not required for compliance. Those farms covered under a WPDES permit are not eligible for state cost sharing to meet performance standards and prohibitions required under their permits.

#### ON SITE FARM VISITS

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On site farm visits will be the next step in the process of utilizing our GIS layer development as mentioned above. Priority Farms that fall within the Water Quality Management Area will be reviewed through a systematic onsite review process. This onsite review process will begin with an informational mailing. The informational mailing will include materials related to the process, performance standards and

prohibitions and anticipated results. The process for onsite will include one on one visits with landowners to go over and discuss the utilization of our NR 151 status review form.

On-site farm visits will be done when:

- asked for voluntarily by a farmer/landowner
- a complaint is asked to be followed up on
- in a 303(d) watershed
- other priority farm conditions

The number, frequency and location of the onsite farm visits will strongly hinge on the current and future level of staff funding and cost sharing resources that will be available to the LCD and potentially affected landowners.

On site visits will conclude with the determination and documentation as to the extent of current compliance with each of the performance standards and prohibitions. Where non-compliant, determine costs, eligibility for cost sharing and discuss timelines.

Note: Cost share requirements are based upon whether or not the evaluated cropland or livestock facility is new or existing and whether or not corrective measures entail eligible costs. See NR 151.09(4) (b-c) and 151.095(5)(b-c).

***Documentation and NR 151 status report:***

Following completion of the on-site evaluation, prepare and issue an NR 151 status report to affected owners of the evaluated parcels. The status report will include at a minimum the following information:

1. Current status of compliance of parcel with each of the performance standards and prohibition
2. Corrective measure options and rough cost estimates to comply with each of the performance and prohibitions for which a parcel is not in compliance.
3. Status of eligibility for public cost sharing
4. Grant funding sources and technical assistance available from Federal, State and Local government and third party service providers.
5. An explanation of conditions that apply if public cost share funds.
6. A timeline for completing corrective measures, if necessary.
7. Signature lines indicating landowner agreement or disagreement with report findings.

## 8. Process and procedures to contest evaluation results to LCC

Note: The compliance records and related information will be attached to each parcel and will remain public record.

### MAINTAINING PUBLIC RECORDS AND LANDOWNER NOTIFICATION

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The compliance records and related information related to specific parcels will remain public record. In an effort to ensure that subsequent landowners are made aware of (and have access to) NR 151 compliance on their property we will continue to work on a long-term notification process.

### TECHNICAL ASSISTANCE & COST SHARING TO INSTALL BMPS (CONSERVATION PRACTICES)

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#### ***Voluntary Participation (Cooperative):***

1. Receive request for cost-share and/or technical assistance from landowner
2. Confirm cost-share grant eligibility and availability of cost-share and technical assistance.
3. Develop and issue cost-share contract listing BMPs to be installed or implemented, estimated costs, project schedule and notification requirements under NR 151.09(5-6) and/or 151.095(6-7).

### NON-VOLUNTARY COMPONENT (NON-COOPERATIVE)

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In the event that a landowner chooses not to install corrective measures either with or without cost sharing, the landowner will be issued notification per NR 151.09(5-6) and/or 151.095(6-7).

The notification will include the following information:

1. If eligible costs are involved, this notification shall include an offer of cost sharing.
2. If no eligible costs are involved, then notification will not include offer of cost sharing and will explain justification why cost sharing does not apply.
3. A description of the performance standard and prohibition being addressed.
4. The compliance status determination of which best management practice or other corrective measures are needed and which, if any, are eligible for cost sharing.
5. An offer to provide or coordinate technical assistance.

6. A compliance period for meeting the performance standard or prohibition
7. An explanation of possible consequences if the owner or operator fails to comply with provisions of the notice.
8. An explanation of local appeals procedures.

If cost sharing is involved, the LCD will draft a program specific cost share agreement including a schedule for installing or implementing BMPs. Potential practices and cost share rates can be found in ATCP 50.

The LCD or NRCS will provide technical assistance and oversight for all conservation practices as staff time allows. These technical services include:

1. Provide conservation plan assistance
2. Provide engineering design assistance
3. Review engineering designs provided by other parties
4. Provide construction oversight
5. Evaluate and certify installation of conservation practices

**Note:** The LCD will not provide NPM 590 Plan Development. We will provide assistance with conservation planning, critical spreading areas and other information we regularly provide. Landowners will be directed to work with Certified Crop Consultants or self-certification program for Nutrient Management Plan development through UW-Extension with DATCP assistance.

#### RE-EVALUATE PARCEL FOR COMPLIANCE

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After corrective measures are applied, conduct evaluation to determine if parcel is now in compliance with relevant performance standard(s) or prohibition(s).

If site is compliant, update "NR 151 Status Report" and issue "Letter of NR 151 Compliance."

**Note:** A letter of NR 151 compliance serves as official notification that the site has been determined to now be in compliance with applicable performance standards and prohibitions. This letter would also include an appeals process if a landowner wishes to contest the findings.

If not compliant, seek non-regulatory remedies or initiate enforcement action.

#### ENFORCEMENT ACTION

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If a landowner refuses to respond appropriately to official notice of non-compliance or is in breach of a cost share contract, the LCD will prepare and issue a "Notice of NR 151 Violation" letter. This Notice will be pursuant to processes outlined and authorities obtained in the Iowa County Manure Storage Ordinance.

**Note:** Enforcement begins with this letter. It will be pursued in circumstances where:

- (1) A breach of contractual agreement has occurred including failure to install, implement or maintain BMPs and
- (2) Non-regulatory attempts to resolve the situation have failed

#### PROCESS FOR APPEAL OF NON-COMPLIANCE DECISION

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Landowners wishing to appeal a notice of NR 151 Non-Compliance may do so to the Iowa County LCC. This process is spelled out in detail within the Iowa County Manure Storage Ordinance. Details related to the appeal process will be forwarded to all landowners receiving a notice of non-compliance.

Note:

After all the education efforts, technical assistance, cost sharing offers, and the LCC appeals process/actions have been done, if non-compliance still exists the file/case will be referred to the DNR for enforcement action.

#### ***Where Does Implementation Start? How do we set Inter- Departmental Priorities?***

The Implementation process related to the performance standards and prohibitions found in NR 151 can and will be a large and very time-consuming task. So it's realistic to evaluate and set priorities within Iowa County.

Currently the LCD has begun the process of utilizing GIS, Iowa County NR 151 program, and on-site visits to begin the inventory of several watersheds within Iowa County. It is likely that based on the shortage of staff and cost sharing resources that we will utilize information gathered through those inventories to continue our implementation process. It is likely some watershed-based emphasis will take place in regards to implementing NR 151 on priority farms. Much of this emphasis will likely relate to available staff and cost sharing resources that become available.

Due to the fact that workloads are high with LCD and staff funding is not keeping up with the workload, we will be continuing to search out collaborative funding endeavors with other entities throughout Iowa County. These collaborative funding avenues and potential access to cost share implementation dollars will likely guide our priority setting over the next 10 years.

If an increase in staff support and cost sharing availability becomes a reality, we will adjust our implementation schedule accordingly.

#### RESPONSE TO PUBLIC COMPLAINTS ALLEGING NONCOMPLIANCE

The LCD will respond to complaints by investigating allegations with a file review and on-site visit. If the review demonstrates significant violation of Agricultural Performance Standards, the LCD will proceed with a strategy for compliance. This process will include the above discussions found within the NR 151 implementation strategy.

Note: Follow-up, on-site visits and access to cost share funding will all be dependent on current availability of local and state financial resources. Inadequate staff time and lack of adequate cost sharing resources could result in slower than normal enforcement.

#### ONGOING EVALUATIONS TO VERIFY ONGOING COMPLIANCE

The LCD will develop a long-term plan to balance workload relating to servicing new NR 151 non-compliant issues and spot-checking existing on-going compliance issues. It is likely that a combination of spot-checking, self-certification forms, and other infield evaluation tools will be used to maintain a long-term monitoring plan to assure ongoing compliance especially in conjunction with the Farmland Preservation Program.

**PRIORITY #1. SOIL EROSION**

Objectives	Actions	Who	When	Anticipated Annual Outcome
Control Erosion to "T"	Write conservation plans to "T" and revise Conservation Plans to "T"	LCD and NRCS	2016-2020	500-1,000 acres of cropland, Conservation Plans and Revisions
Maintenance and construction of grassed waterways, use of contour strips and contour farming	Write conservation plans using CSC and contour farming. Make cost share available for construction of grassed waterways	LCD, NRCS, and DATCP	2016-2020	200-300 acres of CSC, 200-300 acres of Contour Farming, 5 acres of New Waterways
Promote no-till, conservation tillage, and shorter rotations	Write conservation plans using no-till and conservation tillage with residue management and short rotations. Work with landowners, coops, and fertilizer and seed dealers to promote conservation	LCD, NRCS, FSA, DATCP, UW-EX	2016-2020	500-1,000 acres of Conservation Plans
Conduct the Transect Survey	Conduct County Survey bi-annually on a set number of points	LCD, NRCS, LCC, DATCP	2016-2020	Reduce the County soil loss, monitor tillage and cropping trends, Also, share survey data with DATCP
One-on-One Contacts (NR151 Inventory and Evaluation)	Meet with landowners to discuss erosion and water quality issues, methods to solve them and possible cost share opportunities	LCD, NRCS	2016-2020	5-10 Landowners will be contacted, (Priority Farm focus)
FPP Farm Visits and Annual Self Certification System	Continue to promote and service FPP/WLI participants. Writing and revising plans to "T"	LCD	2016-2020	Service the 600 participants, Do farm visits on 25% (est. 150) and conduct the annual self-certification process
Educational and Award Programs	Produce a LCD-NRCS-FSA bi-annual newsletter, LCC Conservation awards and mailings and displays.	LCD, FSA, NRCS, UW-EX	2016-2020	Bi-annual newsletter, Farmers Appreciation Day display LCC Award program
Maintain flood control structures	Engineering reviews and annual mowing of structures, rehabilitation and evaluation if needed	LCD, NRCS, DNR	2016-2020	11 PL-566 Structures
Promote Nutrient Management Planning	The NMP addresses soil loss and meeting "T", provide cost-share opportunities for NMP	LCD, UW-EX	2016-2020	Getting a NMP on 1,000-2,000 acres per year

ESTIMATED ANNUAL LCD COST \$60,000-\$80,000

ESTIMATED ANNUAL COST OTHER THAN STAFF \$110,000-\$160,000

**PRIORITY #2. GROUNDWATER**

<b>Objectives</b>	<b>Actions</b>	<b>Who</b>	<b>When</b>	<b>Anticipated Annual Outcome</b>
Assist and promote Iowa County Groundwater Study	Work with the Iowa County Planning and Development Office and UW-Extension in staff education, distribute data and information to landowners	UW-EX, Planning and Development, LCD	2016-2020	3 - Staff Education (LCD, NRCS, FSA), 5 - Landowner information sharing events. Also included in Farmers Appreciation Day display
Encourage proper decommissioning of unused wells	Use DATCP cost share funds to assist landowners with the expense of having the wells professionally filled	LCD, NRCS, UW-EX, DATCP	2016-2020	15-20 - Decommissioning of wells, 1 well decommissioning demonstrations
Educate and encourage landowners to the importance of well water tests and the protection of groundwater	Work with UW-Extension on an education effort and one-on-one visits	LCD, NRCS, UW-EX, DNR	2016-2020	1 - Newsletter articles/Annual Report, 1 - Display at Farmers Appreciation Day, 10 - One-on-one contacts with focus on priority farms
Promote a well sampling program	Provide information on well testing	LCD, NRCS, UW-EX, DNR	2016-2020	20 to 50 - Landowners have their wells tested
Continue to track well decommissioning projects	Offer LWRM cost share and develop and maintain a record keeping system based on a GIS layer	LCD, NRCS, DNR	2016-2020	10 to 15 - Decommissioning files on LWRM -Cost share and GIS layer of mapping
Work with municipalities on well protection issues.	Offer groundwater information for County study and network communities with DNR program	LCD, DNR, UW-EX	2016-2020	Distribution of information and data and distribution of "sample ordinances" to 1-2 communities
Prevent contaminates from entering the groundwater	Assist in the administration of the animal waste storage and the waste utilization ordinance	LCD, Planning and Development	2016-2020	2-4 permits issued
Promote the benefit of Nutrient Management Planning in groundwater protection	Educate farmers of NMP application	LCD, DNR, UW-EX, Planning and Development	2016-2020	Assist in the development of NMP's on 500-1,000 acres

ESTIMATED ANNUAL LCD COST \$60,000-\$80,000

ESTIMATED ANNUAL COST OTHER THAN STAFF \$40,000-\$50,000

**PRIORITY #3. ANIMAL WASTE MANAGEMENT**

Objectives	Actions	Who	When	Anticipated Annual Outcome
Assist in the enforcement of Iowa County Manure Storage Ordinance	Respond to new permit applications and complaints	LCD, Planning and Development, NRCS, DNR	2016-2020	1 to 3 - Storage structures built to standards
Encourage barnyard runoff control systems where feasible	Review feasibility, offer cost sharing and do technical designs	LCD, NRCS	2016-2020	1 to 3 – Install barnyard improvement practices built to standards for clean water diversions
Be proactive to reduce runoff events	Work with agencies and local radio stations (WDMP) to prevent runoff events and field visits to aid farmers of management	LCD, NRCS, DNR, D99point3	2016-2020	1 to 3 - Alerts and avoided events
Winter spreading management (possible ordinance)	Work with agencies and education of risk of winter spreading	LCD, DNR, DATCP, UWEX	2016-2020	1 - Meeting with agencies, 5-10 farm visits
Deal with Livestock Siting Issue (possible ordinance)	Assist the Iowa County Planning and Development Office in the investigation of a Siting Ordinance and provide technical assistance on animal units and odor items, etc.	LCD, UW-EX, Planning and Development, NRCS	2016-2020	1 to 2 – Meetings, 1 to 2 - Permit Reviews, 1-2 CAFO assistance sites

ESTIMATED ANNUAL LCD COST \$50,000-\$70,000

ESTIMATED ANNUAL COST OTHER THAN STAFF \$100,000-\$150,000

**PRIORITY #4. NUTRIENT MANAGEMENT**

Objectives	Actions	Who	When	Anticipated Annual Outcome
Increase acreage managed under a Nutrient Management Plan (NMP) to NRCS 590 Standard	Encourage use of SEG and EQIP cost share funds to develop NMP's, provide restriction maps, offer cost share, and maintain NMP files and assist in farmer training	UW-EX, LCD, NRCS, FSA, DATCP	2016-2020	1,000-2,000 acres of NMP
Prevent manure run-off incidents and accidents	Work with DATCP, DNR and local radio stations on spreading alerts as a public service announcement	LCD, DATCP, UW-EX, D99point3	2016-2020	1 to 3 - Alerts
Promote enforcement of the County's Nutrient Storage, Utilization and Abandonment Ordinances	Work with Iowa County Planning and Development Office with enforcement of ordinance and review technical items to assure the most standards	Planning and Development, LCD, NRCS, UW-EX	2016-2020	1 to 3 - Project reviews and technical assistance

ESTIMATED ANNUAL LCD COST \$50,000-\$70,000

ESTIMATED ANNUAL COST OTHER THAN STAFF \$20,000-\$40,000

**PRIORITY #5. FORESTRY**

Objectives	Actions	Who	When	Anticipated Annual Outcome
Encourage establishment of quality tree plantings	Assist forestry components in CRP and CREP conservation plans	LCD, NRCS, FSA, DNR	2016-2020	2 to 5 - Contracts
Establish sustainable harvesting practices and BMPs	Assist DNR foresters in the technical components of a harvest plan	LCD, DNR	2016-2020	2 to 5 - Plans
Planting of wildlife habitat areas	Assist landowners and federal agencies with incorporation of wildlife plants in CRP contracts	LCD, FSA, NRCS, DNR	2016-2020	2 to 5 - Plans
Control of terrestrial invasive species	Educate public on benefits and methods to control terrestrial invasives	LCD, NRCS, FSA, DNR	2016-2020	20 to 25 - Landowners assisted
Provide sound tree planting equipment	Work with DNR foresters to make available sound planting equipment	LCD, DNR	2016-2020	Provide and maintain 3 planters to up to 100 planters to have 200-250,000 trees planted

ESTIMATED ANNUAL LCD COST \$10,000-\$20,000

ESTIMATED ANNUAL COST OTHER THAN STAFF \$2,000-\$3,000

**PRIORITY #6. RIPARIAN CORRIDORS**

<b>Objectives</b>	<b>Actions</b>	<b>Who</b>	<b>When</b>	<b>Anticipated Annual Outcome</b>
Promote installation of grass filters and riparian buffers, esp. CREP	Write articles and conservation plans including buffer standards.	LCD, NRCS, FSA, DNR, MRPHA	2016-2020	1 to 2 Articles, 5 to 10 CREP plans
Notify landowners of CREP opportunities on all streams and 6 townships in Iowa County	Send information, do farm visits, and do newsletter articles on CREP and other cost share opportunities.	LCD, NRCS, FSA, DNR, MRPHA	2016-2020	1 to 2 - Direct mail newsletters, 2 to 5 - Landowner visits
Establish stream buffers, crossing and fish habitat on County waters	Service CREP contracts. Offer LWRM cost share on rip rap and crossings. Work with Trout Unlimited on incorporation of fish habitats.	LCD, NRCS, DNR, TU, DATCP	2016-2020	2 to 3 - Projects through LWRM cost share, 1 to 2 - Projects with cooperation with TU
Inform landowners of other buffering opportunities	Offer LWRM fencing cost share to protect streams. Remind landowner of continuous CRP signup options.	LCD, NRCS, FSA	2016-2020	2 to 3 - Projects/Contracts

ESTIMATED ANNUAL LCD COST \$20,000-\$30,000

ESTIMATED ANNUAL COST OTHER THAN STAFF \$50,000-\$80,000

**PRIORITY #7. AGRICULTURAL PRODUCTIVITY**

<b>Objectives</b>	<b>Actions</b>	<b>Who</b>	<b>When</b>	<b>Anticipated Annual Outcome</b>
Keep soil in place and productive	Continue to work with farmers in meeting "T" through FPP, NR151 and NMP	LCD, NRCS, FSA, UW-EX	2016-2020	500-600 - Landowner conservation plans certified through FPP
Keep water clean	Assist landowners in land management through BMPs i.e. no-till, min-till, grassed waterways	LCD, NRCS, FSA	2016-2020	20 to 30 - Conservation plans updated, 4 to 10 ac. of grassed waterways
Offer Wildlife Damage assistance	Work with USDA-APHIS and DNR on crop loss issues and also assist in venison donation	LCD, USDA-APHIS, DNR	2016-2020	20 to 30 - Landowners assisted

ESTIMATED ANNUAL LCD COST \$10,000-\$15,000

ESTIMATED ANNUAL COST OTHER THAN STAFF \$30,000-\$40,000

**PRIORITY #8. RURAL LAND USE ISSUES/CONFLICTS**

Objectives	Actions	Who	When	Anticipated Annual Outcome
Assist in farm and non-farm issues to reduce conflicts	Distribute "Partners in Rural Wisconsin" publication	LCD, Townships, Planning and Development, Banks, Realtors	2016-2020	Distribution of 50-100 booklets
Application of County's Smart Growth plan and Farmland Preservation plan	Work and consult on land use issue in County	LCD, Townships, Planning and Development	2016-2020	1 to 2 - Meetings

ESTIMATED ANNUAL LCD COST \$5,000

ESTIMATED ANNUAL COST OTHER THAN STAFF \$1,000

**PRIORITY #9. AGRICULTURAL SUSTAINABILITY**

<b>Objectives</b>	<b>Actions</b>	<b>Who</b>	<b>When</b>	<b>Anticipated Annual Outcome</b>
Promote grazing opportunities	Offer paddock and watering design	LCD, NRCS, UW-EX	2016-2020	2 to 3 - Conversion to grass base ag
Feed what is grown, grow what is fed	Promote crop rotation and animal ag	LCD, NRCS	2016-2020	2 to 3 - Farm change overs
Keep soil productive	Promote low-till, NMP, and rotations to lower impact ag activities	LCD, NRCS	2016-2020	8 to 10 - Conservation Plans revised
Track ag activities and land use changes	Document ag statistics by year	LCD, NRCS, FSA, DATCP	2016-2020	1 - Review (survey) of DATCP statistics
Partner on grazing opportunities	Promote and provide capacity for Grazing Broker Effort	LCD, NRCS, DATCP, SW Badger RC & D	2016-2020	Develop grazing & farm plans on 5 to 6 farms and 100-400 cattle on grass

ESTIMATED ANNUAL LCD COST \$10,000

ESTIMATED ANNUAL COST OTHER THAN STAFF \$10,000

**PRIORITY #10. LOSS OF AGRICULTURAL LANDS**

<b>Objectives</b>	<b>Actions</b>	<b>Who</b>	<b>When</b>	<b>Anticipated Annual Outcome</b>
Inventory Iowa County cropland and track ag use	Review DATCP ag statistics report.	LCD, NRCS, FSA, Planning and Development	2016-2020	Annual review and report of inventory
Keep ag as a land use activity	Work with Iowa County Planning and Development Office on Comprehensive Plans (Smart Growth), especially the ag component and the Farmland Preservation plan	LCD, NRCS, Planning and Development	2016-2020	1 to 2 Meetings
Keep animal ag in the County	Work with Iowa County Planning and Development Office on the Ag Siting Issue	LCD, Planning and Development	2016-2020	1 to 2 Meetings and possible ordinance and education issues and requirements
Keep good soil in productive ag use	Work with planners, Iowa County Planning and Development Office, and townships in review of development plots.	LCD, Planning and Development, Townships	2016-2020	1 to 2 Meetings
Positive Landowner/Renter relations	Work with landowners and renters on land management/land use activities.	LCD, NRCS	2016-2020	8 to 10 Jointly developed conservation and NMP plans

ESTIMATED ANNUAL LCD COST \$5,000

ESTIMATED ANNUAL COST OTHER THAN STAFF \$5,000

**ADDITIONAL EFFORTS. EDUCATION AND OUTREACH**

Objectives	Actions	Who	When	Anticipated Annual Outcome
Improve understanding of resource management	Do public education events	LCD, NRCS, UW-EX	2016-2020	Educate
Modernize information sharing	Integrate technology in education efforts	LCD, NRCS, UW-EX, Planning and Development	2016-2020	Improve accessibility through technology to resource education

**ADDITIONAL EFFORTS. CONCERN FOR LARGE FARMS**

Objectives	Actions	Who	When	Anticipated Annual Outcome
Appreciate growing operations	Monitor the trend in farm sizes	LCD, NRCS, DATCP, UW-EX	2016-2020	Learn about changing farmer customer needs
Meet water and soil resource management issues	Match staffing and training to customer needs	LCD, NRCS, DATCP, UW-EX	2016-2020	Meet the resource management needs of larger crop and Ag operations
Garner cost-share funds to meet needs	Work with State agencies on cost-share grant management	LCD, NRCS, DATCP	2016-2020	Survey needs and apply grant funds where needed
Anticipate and appreciate social issues related to larger operations	Assist the County Planning and Development Office to mediate potential issues	LCD, NRCS, Planning and Development	2016-2020	Help the different social and land use interests, share County resources and area

The following agencies, organizations, and groups will be instrumental in coordination and cooperation of implementing this LWRM plan.

**Partners in Conservation**

Bethel Horizons  
Conservation Congress  
Driftless Area Conservancy  
Dodgeville Agri Service  
Duck's Unlimited Iowa County Chapter  
EQIP Work Group  
Farm Bureau  
Farm Service Agency  
Friends of Black Hawk Lake  
Highland Sportsman's Club  
Land Conservation Committee  
Lands' End  
Military Ridge Prairie Heritage Effort  
National Wild Turkey Federation  
Natural Resources Conservation Service  
Pheasants Forever – Iowa County Chapter Southwest  
Badger RC&D  
Southwestern Wisconsin Prairie Enthusiasts  
U.S. Fish and Wildlife Service  
U.W. Extension Service  
Whitetails Unlimited  
Walnut Hollow Farm  
Wings Over Wisconsin  
WI Department of Agriculture, Trade and Consumer Protection  
WI Department of Natural Resources  
Iowa County Planning and Development Office  
SW Badger RC&D Grazing Broker Effort

IOWA COUNTY MINIMUM RESOURCE MANAGEMENT STANDARDS

INVENTORY AND EVALUATION FORM

Department of Agriculture, Trade and Consumer Protection Model Form

Farmland Preservation Program (FPP) Farm Inspection Report

V 4-11-14

Farm Inspection Requirements

Farm inspections are required every four years to determine compliance with the soil and water conservation standards for Farmland Preservation Program (FPP) eligibility. To claim the farmland preservation tax credits in under s. 71.613 Stats. of \$5, \$7.50, \$10 per acre, landowners can only certify that they are in compliance on their tax return if the farm either:

- 1) Complies with the state agricultural performance standards and prohibitions incorporated into ATCP 50, Wis. Admin. code. Some standards have a delayed implementation date of January 1, 2016,
or
2) Is covered by a performance schedule that enables the landowner to comply with state conservation standards by a specific deadline set by the county. The performance schedule, including amendments or extensions, may not allow the landowner more than 5 years from the time they are informed of their compliance obligations to achieve compliance with all applicable conservation standards.

If there is a failure to agree on needed measures to achieve compliance, or a failure to achieve compliance in the agreed upon timeframe defined in the performance schedule, the county may issue a notice of noncompliance under s. 91.82(2), Stats., to suspend the landowner's eligibility for tax credits.

County: Inspection date:

Name of inspector: Phone:

Signature of inspector: Date:

Landowner Information

Name(s):

Phone: E-mail:

Property Information Location(s) of land for which credit is claimed:

Table with 5 columns: TOWNSHIP, RANGE, SECTION, TOWN, VILLAGE, CITY, PARCEL TAXID #'S



## Farmland Preservation Program (FPP) Farm Inspection Report

### Conservation Compliance Checklist

Landowner(s): \_\_\_\_\_ Inspection Date: \_\_\_\_\_

FPP participants continuously claiming tax credits are not required to implement the *italicized* standards until after January 1, 2016.

Cropland & Pasture Standards	In Compliance	Will Achieve Compliance (Season, Year)	Does not Apply
<p>A current nutrient management plan (NM) has been developed and implemented according to NRCS 590 standard which may be submitted to the county conservation office as a NM Plan Checklist form.</p> <ul style="list-style-type: none"> <li>Fields must have initial soil tests conducted by 2016 and follow crop management practices that are planned to comply with the 590 standard across the crop rotation. The NM plan must include current soil tests conducted by DATCP certified lab. Fields in a NM plan must: 1. Be updated when cropping systems change, 2. Include maps identifying NRCS 590 nutrient application restriction areas, 3. Have phosphorus applications planned over the entire rotation, and 4. Show no visible signs of gully erosion.</li> <li>Pastures are exempt from NM plan requirements if the pasture is a feedlot, or when the pasture's average stocking rate is 1 AU/acre or less during grazing season and no nutrients are mechanically applied [ATCP 50.04(3)(b)]. When the pasture's average stocking rate is more than 1 AU/acre over the grazing season, a planner may assume soil test values of 150 ppm P and 6% organic matter content [ATCP 50.04(3)(d) and (de)].</li> </ul>	<input type="checkbox"/>		<input type="checkbox"/>
<p>Cropped fields and <i>pastures</i> meet tolerable soil loss "T".</p> <p>Method used to calculate "T":</p> <p>SnapPlus <input type="checkbox"/>    RUSLE 2 <input type="checkbox"/>    WEPS <input type="checkbox"/></p> <ul style="list-style-type: none"> <li>Fields must follow crop management practices that are planned to comply with the 590 standard across the crop rotation. Soil erosion rates should be estimated using the latest prediction models: Soil Nutrient Application Planner, Revised Universal Soil Loss Equation 2 and Wind Erosion Prediction System [ATCP 50.04(2)Note].</li> </ul>	<input type="checkbox"/>		<input type="checkbox"/>
<p><i>Cropland and pasture areas average a phosphorus index of 6 or less over the accounting period and do not exceed a phosphorus index of 12 in any individual year within the accounting period.</i></p> <ul style="list-style-type: none"> <li>All cropland and pastures must comply with the Phosphorus Index (PI) standard [NR 151.04] [ATCP 50.04(1)]. A NM plan meeting the standard in ATCP 50.04(3) may be used to demonstrate compliance with DNR's PI standard.</li> </ul>	<input type="checkbox"/>		<input type="checkbox"/>
<p><i>No tillage conducted within a minimum of 5 feet of surface water.</i></p> <ul style="list-style-type: none"> <li>Cropland must be managed to include a minimum setback of 5 feet from the top of the channel of surface waters. No tillage can occur and 70% vegetative cover must be maintained in that tillage setback zone to ensure bank integrity. Cost-sharing is not required to implement this practice [ATCP 50.04(4)(a); NR 151.03]. When establishing the setback width, start with 5 feet. If it is determined that 5 feet may not be adequate to maintain bank stability, county land conservation staff should [ATCP 50.04(4)(b)]. <ul style="list-style-type: none"> <li>Use best professional judgment to increase setback width based on factors including bank materials, height, slope, cause of bank erosion, and soil type.</li> <li>Increase the tillage setback width by smallest increment necessary to maintain bank stability.</li> <li>Follow a consistent approach when making setback width determinations by consulting with NRCS or DATCP engineers or technicians.</li> <li>Consider enrolling riparian areas in the Conservation Reserve Enhancement Program (CREP) can achieve compliance with the tillage setback standard. [ATCP 50.04(4)(b) Note]</li> </ul> </li> </ul>	<input type="checkbox"/>		<input type="checkbox"/>

Livestock Standards	In Compliance	Will Achieve Compliance (Season, Year)	Does Not Apply
How many of the following facilities or structures are located in a Water Quality Management Area (WQMA)? Feedlots:                      Barnyards:                      Manure storage:			<input type="checkbox"/>
<ul style="list-style-type: none"> <li>The clean water diversion from feedlots and unconfined manure pile standards reference a water quality management area (WQMA). A WQMA is 1,000 feet from a lake, pond, or flowage or 300 feet from a stream, or in areas susceptible to groundwater contamination [NR 151.015].</li> </ul>			
There are no unconfined manure piles in a WQMA.	<input type="checkbox"/>		<input type="checkbox"/>
Runoff is diverted away from all feedlots, manure storage areas, and barnyards within WQMAs.	<input type="checkbox"/>		<input type="checkbox"/>
There is self-sustaining sod or vegetative cover adequate to preserve streambank or lakeshore integrity in areas where livestock have access.	<input type="checkbox"/>		<input type="checkbox"/>
<ul style="list-style-type: none"> <li>This does not apply to properly designed, installed and maintained livestock or farm equipment crossings.</li> </ul>			
How many manure storage facilities are located on the entire farm?			<input type="checkbox"/>
Facilities have no visible signs of leakage or failure.	<input type="checkbox"/>		<input type="checkbox"/>
Facilities are maintained to prevent overflow.	<input type="checkbox"/>		<input type="checkbox"/>
Each storage facility that has not had manure added or removed from the facility for a period of 24 months has either been closed in a manner that will prevent future contamination of ground or surface water or has been approved by DNR for continued use.	<input type="checkbox"/>		<input type="checkbox"/>
Facilities constructed or substantially altered after 2002 meet the NRCS 313 standard.	<input type="checkbox"/>		<input type="checkbox"/>
<i>There are no significant discharges of process wastewater to waters of the state from feed storage or other sources.</i>	<input type="checkbox"/>		<input type="checkbox"/>
There are no channels or other visible signs of significant discharge from a feedlot or stored manure into waters of the state.	<input type="checkbox"/>		<input type="checkbox"/>
<ul style="list-style-type: none"> <li>Livestock operators must prevent a “significant” discharge from manure and feed storage, feedlots, and process wastewater. A “significant” discharge is based on factors such as volume, frequency, receiving waters, and slope. DATCP grant funds may be used to provide cost-sharing for a feed storage runoff control system as long as the system meets applicable standards including NRCS technical guide waste treatment standard 629 [ATCP 50.705].</li> <li>Livestock operators may consider low cost options for removing “significant” direct feedlot runoff such as: 1. Grazing cattle on nearby fields. 2. Collecting lot manure on a consistent basis and field applying in accordance with a nutrient management plan. 3. Removing channels with roof gutters, clean water diversions, or rock spreader diversions with harvested vegetative runoff filters.</li> </ul>			

**Farmland Preservation Program (FPP)**

**Annual Conservation Compliance Certification**

To continue claiming the farmland preservation program (FPP) tax credit, the Iowa County Land Conservation Department requires participants to annually certify that their entire farm meets all state soil and water conservation standards in exchange for receiving the annual FPP tax credit. The instructions below will help guide you when completing the certification form and meeting this farmland preservation tax credit eligibility requirement. To claim the farmland preservation tax credits in under s. 71.613 Stats. of \$7.50, per acre, landowners can only certify that they are in compliance on their tax return if the farm either:

- 1) Complies with the state agricultural performance standards and prohibitions incorporated into ATCP 50, Wis. Admin. code.,
- or
- 2) Is covered by a performance schedule that enables the landowner to comply with state conservation standards by a specific deadline set by the county (which cannot exceed December 31, 2015).

If you are unsure of your compliance status or have questions as you complete the following checklist, please contact the Iowa County Land Conservation Office at (608) 930-9891.

**Please complete both sides of this form and return by October 30, 2015 to the Iowa County Land Conservation Department at the following address:**

**IOWA COUNTY LAND CONSERVATION DEPARTMENT, 1124 PROFESSIONAL DRIVE, SUITE 500, DODGEVILLE, WI 53533**

Failure to complete and return the form by the deadline may result in the issuance of a Notice of Noncompliance under s. 91.82(2), Wis. Stats. This notice suspends your eligibility for tax credits. Subject to available resources, cost-sharing and technical assistance may be available from the county. Private consultants and others may also provide help meeting compliance requirements.

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**Landowner and Property Information**

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Name(s):

Address:

Phone:                      E-mail:

Cell Phone:

**Location(s) of land for which credit is claimed:**

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**Farmland Preservation Tax Credit Claim History**

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Did you claim Farmland Preservation tax credits last year?  Yes       No       Don't Know

**2015 Farmland Preservation Program (FPP) Farm Conservation Compliance Checklist**

For each of the standards listed below, please check the box that best characterizes the farm for which you claim a tax credit.

Cropland & Pasture Standards	In Compliance	Will Achieve Compliance (Season, Year)	Does not Apply
A current nutrient management plan (NM) has been developed and implemented according to NRCS 590 standard which may be submitted to the county conservation office as a NM Plan Checklist form.	<input type="checkbox"/>		<input type="checkbox"/>
Cropped fields meet tolerable soil loss "T".	<input type="checkbox"/>		<input type="checkbox"/>

Livestock Standards	In Compliance	Will Achieve Compliance (Season, Year)	Does Not Apply
<ul style="list-style-type: none"> <li>A WQMA is 1,000 feet from a lake, pond, or flowage or 300 feet from a stream, or in areas susceptible to groundwater contamination [NR 151.015].</li> <li>If your farm does not have livestock or related facilities described in a particular standard, check the "Does not apply" box.</li> </ul>			
There are no unconfined manure piles in a WQMA.	<input type="checkbox"/>		<input type="checkbox"/>
Runoff is diverted away from all feedlots, manure storage areas, and barnyards within WQMAs.	<input type="checkbox"/>		<input type="checkbox"/>
There is self-sustaining sod or vegetative cover adequate to preserve streambank or lakeshore integrity in areas where livestock have access.	<input type="checkbox"/>		<input type="checkbox"/>
Facilities have no visible signs of leakage or failure.	<input type="checkbox"/>		<input type="checkbox"/>
Facilities are maintained to prevent overflow.	<input type="checkbox"/>		<input type="checkbox"/>
Each storage facility that has not had manure added or removed from the facility for a period of 24 months has either been closed in a manner that will prevent future contamination of ground or surface water or has been approved by DNR for continued use.	<input type="checkbox"/>		<input type="checkbox"/>
Facilities constructed or substantially altered after 2002 meet the NRCS 313 standard and Iowa County's ordinance.	<input type="checkbox"/>		<input type="checkbox"/>
There are no channels or other visible signs of significant discharge from a feedlot or stored manure into waters of the state.	<input type="checkbox"/>		<input type="checkbox"/>

**Certification and Signatures**

The landowner(s) certify that the eligible acres are part of farm that is in compliance with the applicable conservation standards or that compliance with the standards will be achieved, as indicated in the conservation compliance status checklist.

\_\_\_\_\_  
Landowner(s)

\_\_\_\_\_  
Date



Wisconsin Department of Agriculture, Trade and Consumer Protection  
 Division of Agricultural Resource Management  
 PO Box 8911, Madison, WI 53708-8911  
 Phone: (608) 224-4622 Fax: (608) 224-4615

**Notice of Noncompliance with Farmland Preservation Program Tax Credit Requirements**

*(Farmland Preservation Program, ss. 91.80 and 91.82, Wis. Stats., and s. ATCP 50.16, Wis. Admin. Code)*

LANDOWNER NAME		COUNTY	DATE NOTICE ISSUED
		IOWA	2/11/2016
STREET ADDRESS			
CITY		STATE	ZIP
PHONE	E-MAIL		

**Property Location** *(For additional property, please attach additional documentation.)*

TOWNSHIP	RANGE	SECTION	TOWN, VILLAGE, CITY	PARCEL TAX ID #

**The County Land Conservation Committee finds the following:**

- Landowner failed to comply with applicable land and water conservation standards required under s. 91.80, Wis. Stats.
- Landowner failed to comply with a performance schedule under s. ATCP 50.16(3), Wis. Stats.
- Landowner failed to permit a reasonable inspection under s. 91.82(1)(c)1., Wis. Stats.
- Landowner failed to certify compliance as required under s. 91.82(1)(c)2., Wis. Stats.
- Property described above is not subject to a farmland preservation agreement or covered by a certified farmland preservation zoning district and therefore is ineligible for eligibility for farmland preservation tax credits.
- Landowner signed the voluntary waiver of rights.

The landowner may request to meet with the county land conservation committee to contest or discuss the violation, ATCP 50.16 (6)(b)(3).

<b>Voluntary Waiver of Rights</b> <i>(Not available for property subject to a farmland preservation agreement)</i>	
By signing below, landowner wishes to waive the right to a hearing and farm inspection, and agrees to voluntarily refrain from collecting tax credits under subch. IX of ch. 71, Stats.	
_____ SIGNATURE OF LANDOWNER	_____ DATE:

Continued on Reverse

ADDITIONAL EXPLANATION OF NONCOMPLIANCE DETERMINATION:  
 Landowner failed to return 2015 annual self-certification form and failed to complete a nutrient management plan.

**Land Conservation Committee Signature**

Based on the findings, the IOWA County Land Conservation Committee hereby issues a Notice of Noncompliance under s. 91.82, Wis. Stats., for the landowner and property described in this notice. As of the date of this notice, **landowner is not eligible to claim any farmland preservation tax credits under subch. IX of ch. 71, Stats.**, unless this notice is subsequently withdrawn (cancelled) and not in effect at the end of the taxable year to which the claim relates.

AUTHORIZED SIGNATURE		DATE
PRINTED NAME AND TITLE BOB BUNKER, LCC COMMITTEE CHAIR		PHONE 608-930-9891
STREET ADDRESS 1124 PROFESSIONAL DRIVE, SUITE 500		
CITY DODGEVILLE	STATE WI	ZIP 53533

This notice, issued by the County Land Conservation Committee, shall be provided to the Wisconsin Department of Revenue and the county planning and zoning committee, if the land is covered by a farmland preservation zoning ordinance. If the County Land Conservation Committee determines that an owner has corrected the failure described in this Notice of Noncompliance, the Committee shall withdraw (cancel) the Notice of Noncompliance and notify the landowner, the Department of Revenue, and the planning and zoning committee of the withdrawal (cancellation), on a form approved by DATCP.

**Send copy of notice to:**

Wisconsin Department of Revenue  
 DOR-FARMLAND 5-144  
 RSOB – Audit Bureau  
 PO Box 8906  
 Madison, WI 53708-8906

Wisconsin Department of Agriculture, Trade and Consumer Protection  
 Division of Agricultural Resource Management  
 Bureau of Land and Water Resources – Operations Program Associate  
 PO Box 8911  
 Madison, WI 53708-8911

## DEFINITIONS USED IN NR 151 EVALUATION

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

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

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

**Unconfined Manure Pile** – a quantity of manure that is at least 175 ft<sup>3</sup> in volume and which covers the ground surface to a depth of at least 2 inches and is not confined within a manure storage facility, livestock housing facility or barnyard runoff control facility or covered or contained in a manner that prevents storm water access and direct runoff to surface water or leaching of pollutants to groundwater.

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

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

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

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

**Public Hearing**  
**Review of the Iowa County Land**  
**and Water Resource Plan**

The Wisconsin Department of Agriculture requires each County to update/revise the County's LWRM Plan to be current with State Statutes and requirements for eligibility of state funding programs. To be held on Thursday October 8, 2015 at 9:00 A.M. at the Land Conservation Office/USDA Office Conference Room at 1124 Professional Dr., Suite 500, Dodgeville, WI 53533.

**PUBLIC HEARING**  
**Review of the Iowa County Land and Water Resource Plan**  
The Wisconsin Department of Agriculture requires each county to update/revise the county's LWRM Plan to be current with State Statutes and requirements for eligibility of state funding programs. To be held on Thursday, October 8, 2015 at 9:00 a.m. at the Land Conservation Office/USDA Office Conference Room at 1124 Professional Drive, Suite 500, Dodgeville, WI 53533.

# Proof of Publication

STATE OF WISCONSIN  
IOWA COUNTY --- ss.

J. Patrick Reilly, being duly sworn, is the co-publisher of The Dodgeville Chronicle, a weekly newspaper published at the City of Dodgeville, in the County of Iowa and State of Wisconsin; that the:

Public Hearing  
Review of the Iowa County Land and Water Resource Plan

of which a copy is hereunto annexed and made a part hereof, was duly published in The Dodgeville Chronicle once each week for two successive week(s). The publication date(s) were:

September 24, October 1, 2015

Printer's Fees, \$19.86



J. Patrick Reilly, Co-Publisher

Subscribed and sworn to before me on  
October 1, 2015



Kayla Barnes  
Notary Public, Iowa County, Wisconsin  
Commission Expires February 2, 2019

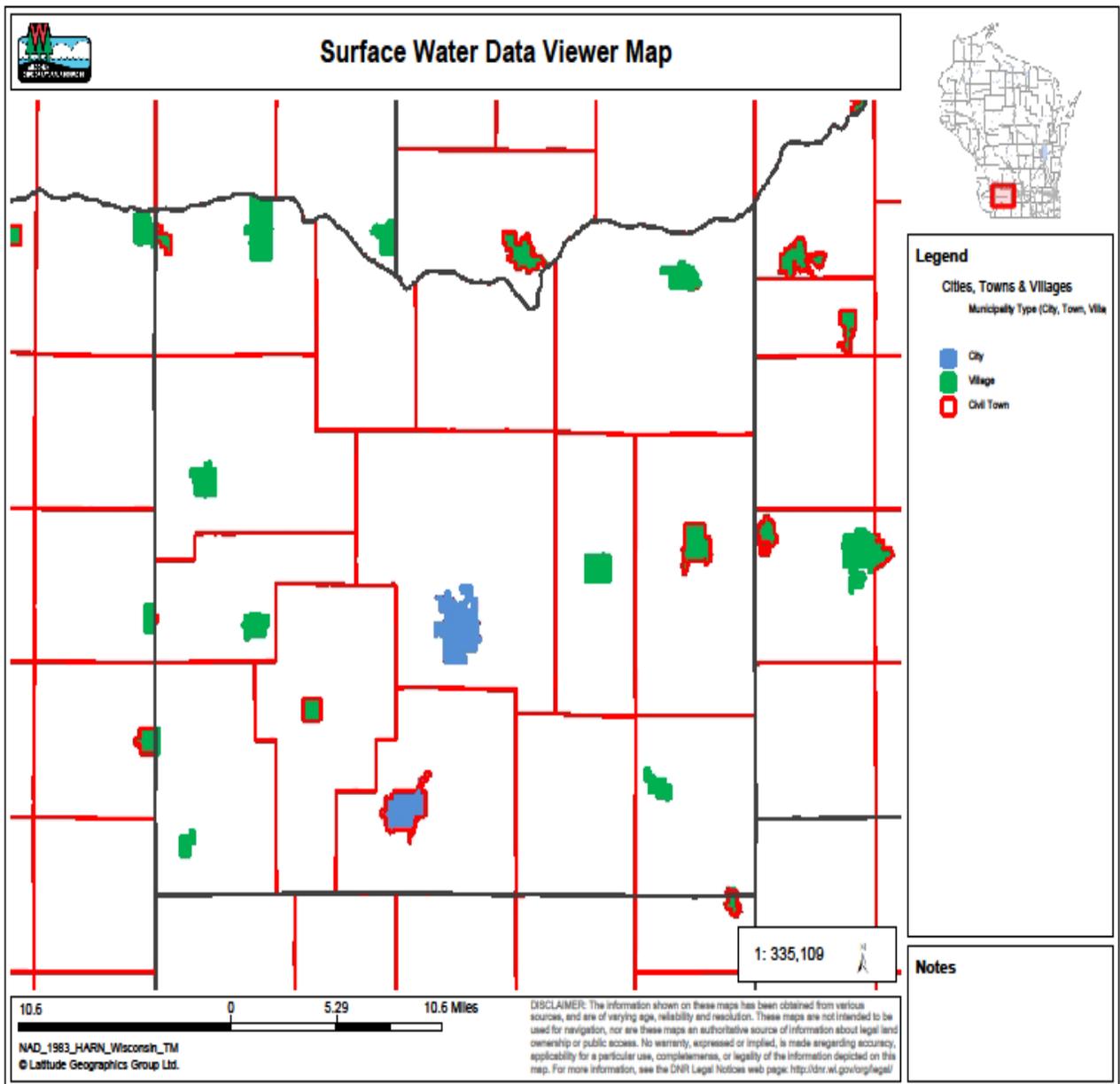
## APPENDIX A – CONSERVATION PRACTICES AND TECHNICAL ASSISTANCE OFFERED

- “ Waterway system*
- “ Access Road or Cattle Crossing*
- “ Well Decommission*
- “ Critical Area Stabilization*
- “ Livestock Watering Facility*
- “ Roof Runoff System*
- “ Manure Storage Abandonment*
- “ Heavy Use Area Protection*
- “ Underground Outlet*
- “ Stream bank and Shoreline Protection*
- “ Livestock Fencing*
- “ Diversion*
- “ Filter Strip*
- “ Sediment Basin*
- “ Subsurface Drain*
- “ Water and Sediment Control Basin*
- “ Animal Trails or Walkways*
- “ Milking Center Waste Control System*
- “ Relocating or Abandoning Animal Feeding Operations*
- “ Nutrient Management Planning - \$8.00 per acre*
- “ Manure Storage*

## APPENDIX B – MAPS OF IOWA COUNTY

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# CIVIL MUNICIPALITIES



# SOILS

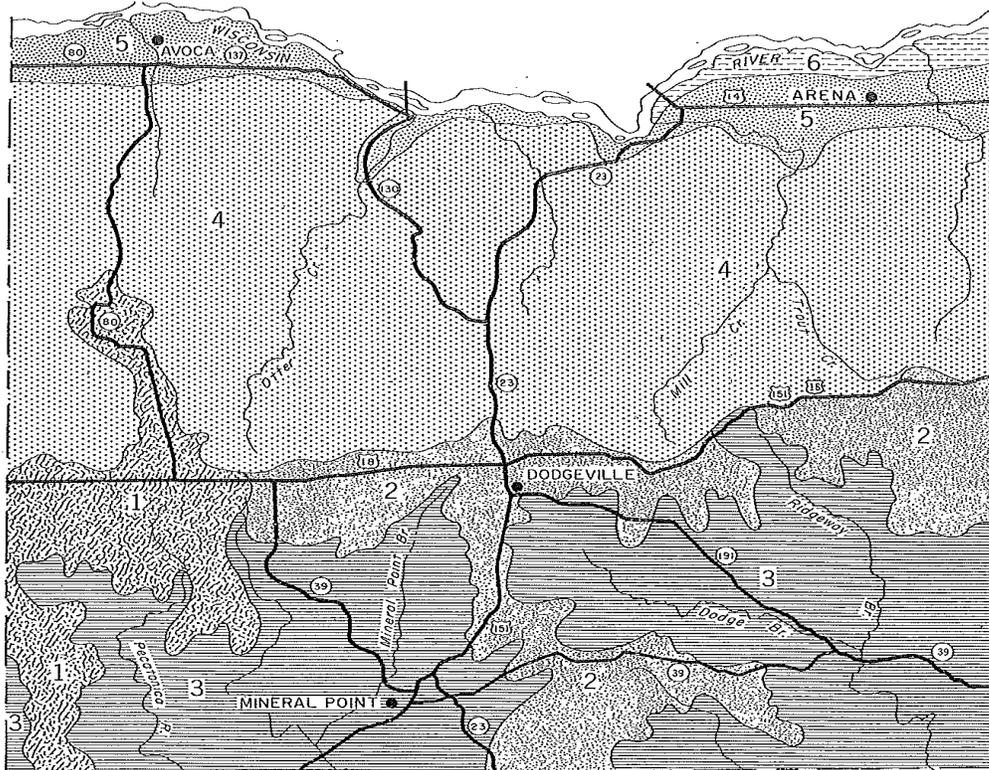
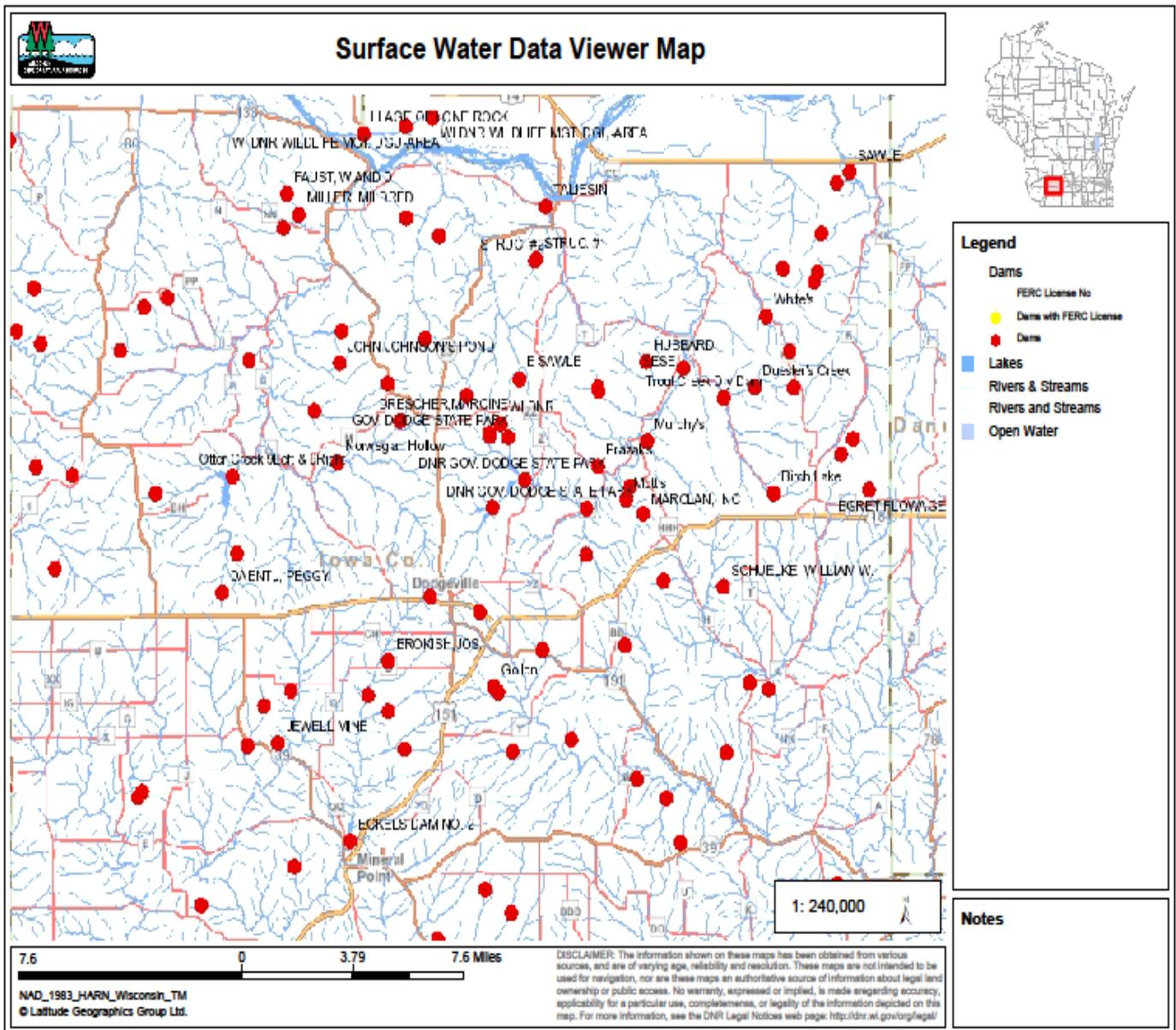


Figure 6.—Legend for soil association map.

1. Dark-colored, deep, silty soils on gently sloping uplands: Tama, Dodgeville, deep.
2. Dark-colored, moderately deep to thin soils on sloping uplands: Dodgeville, Sogn.
3. Light-colored, deep, silty soils on sloping uplands: Dubuque, deep, Fayette.
4. Light-colored, moderately deep to thin soils on rolling uplands: Dubuque, Steep stony and rocky land.
5. Loamy to sandy soils on nearly level stream terraces: Dakota, Sparta, Gotham.
6. Alluvial land on flood plains subject to overflow: Loamy alluvial land.

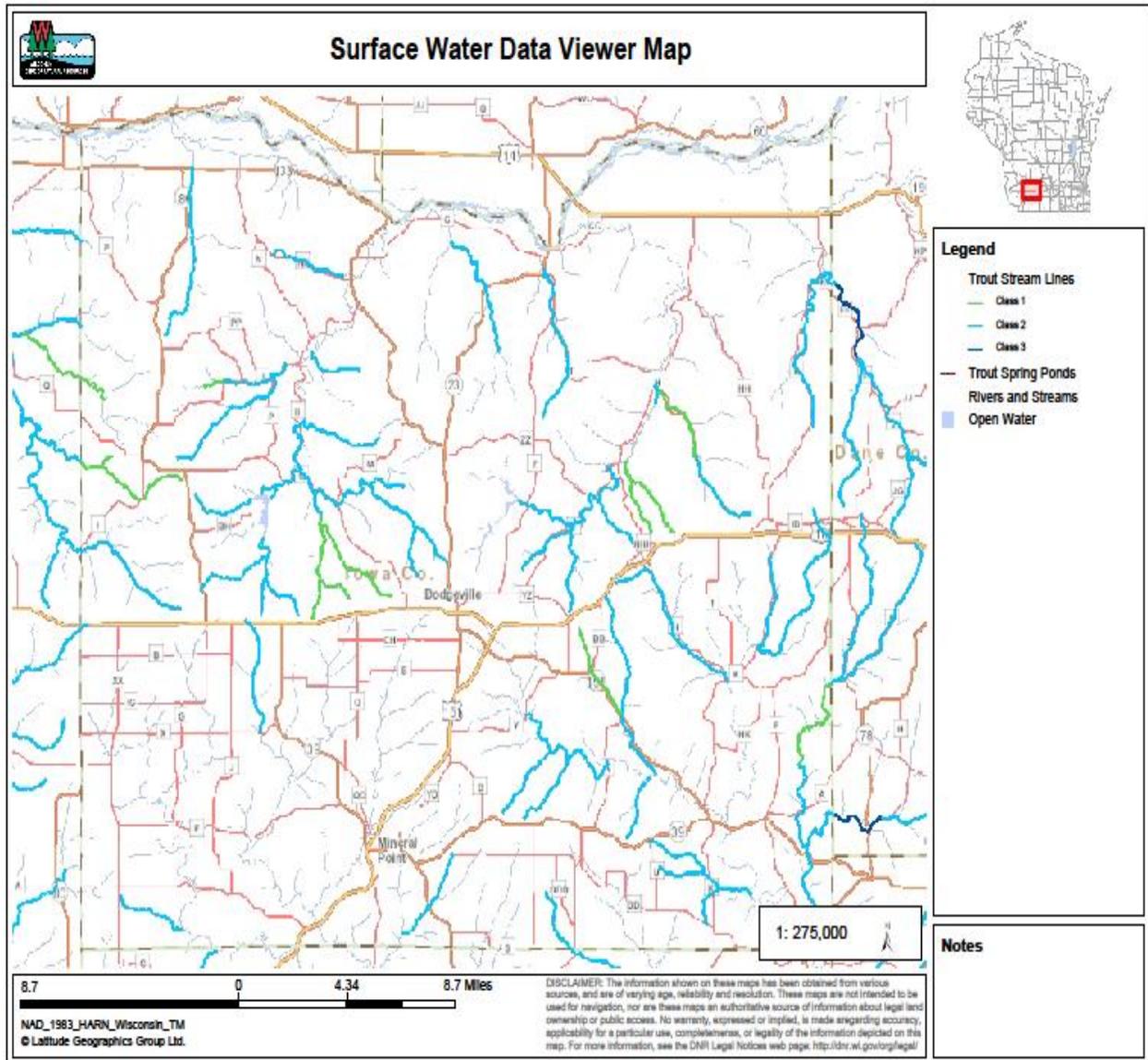


# DAMS

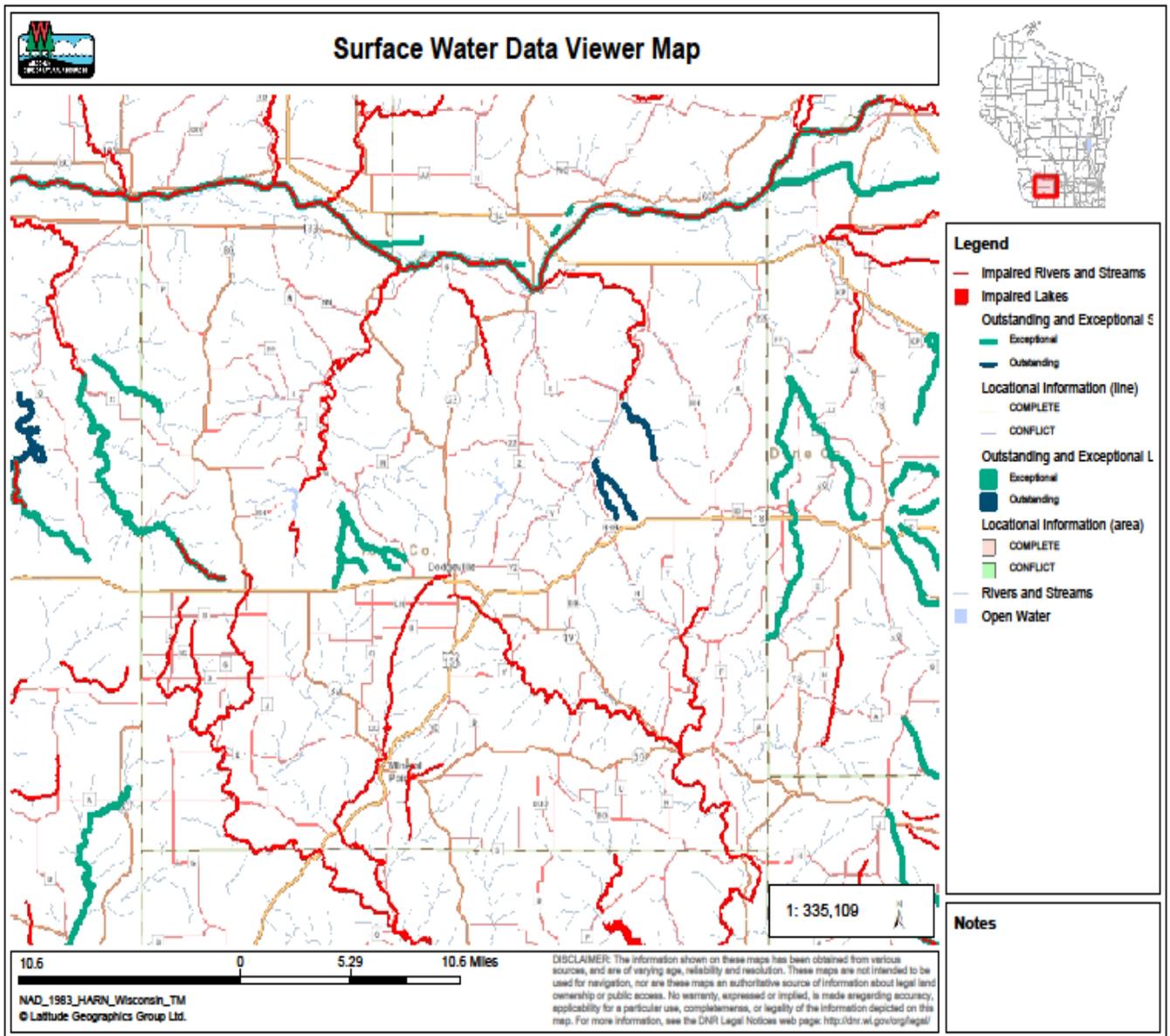




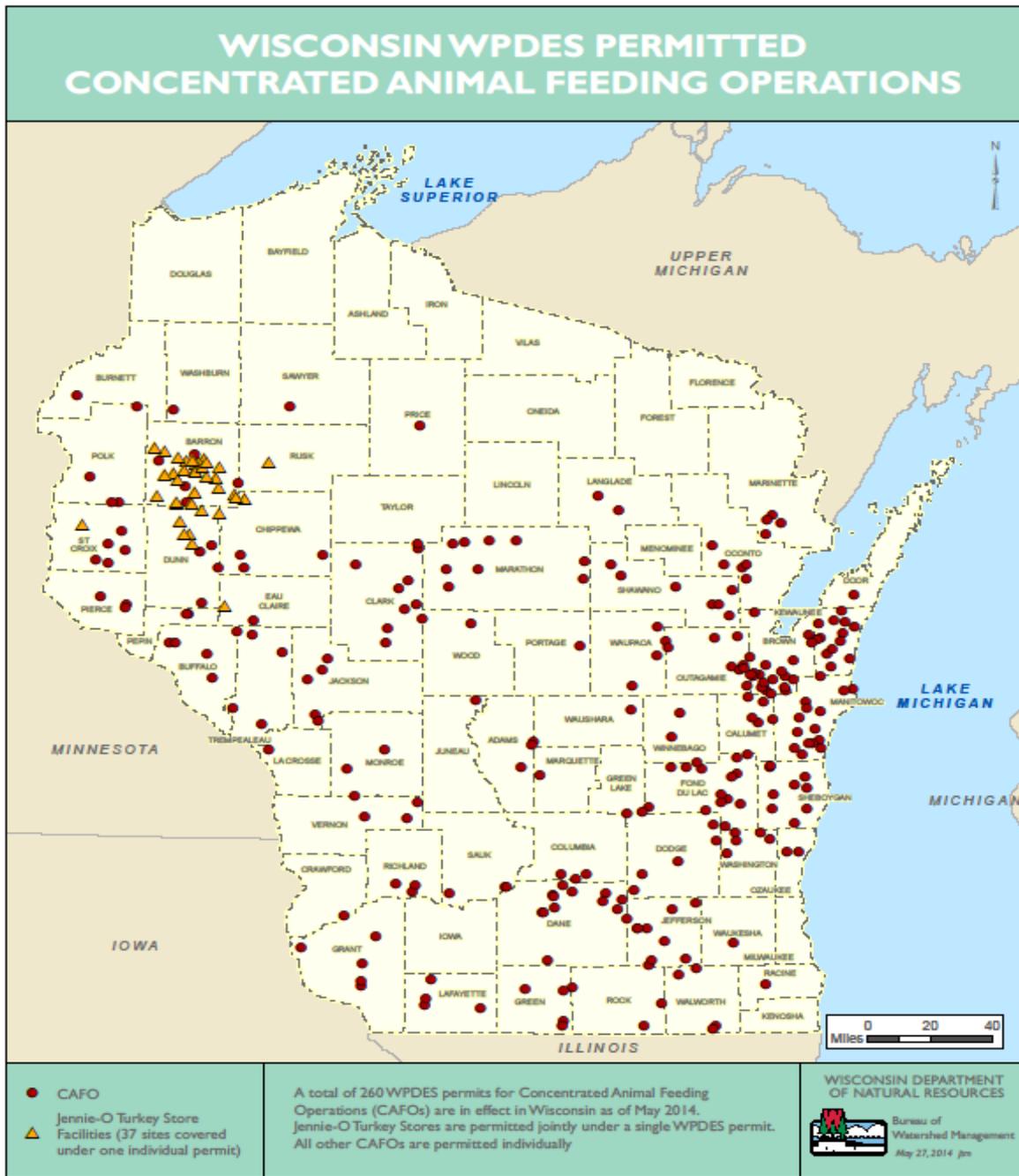
# TROUT STREAMS



# 303D IMPAIRED WATERS

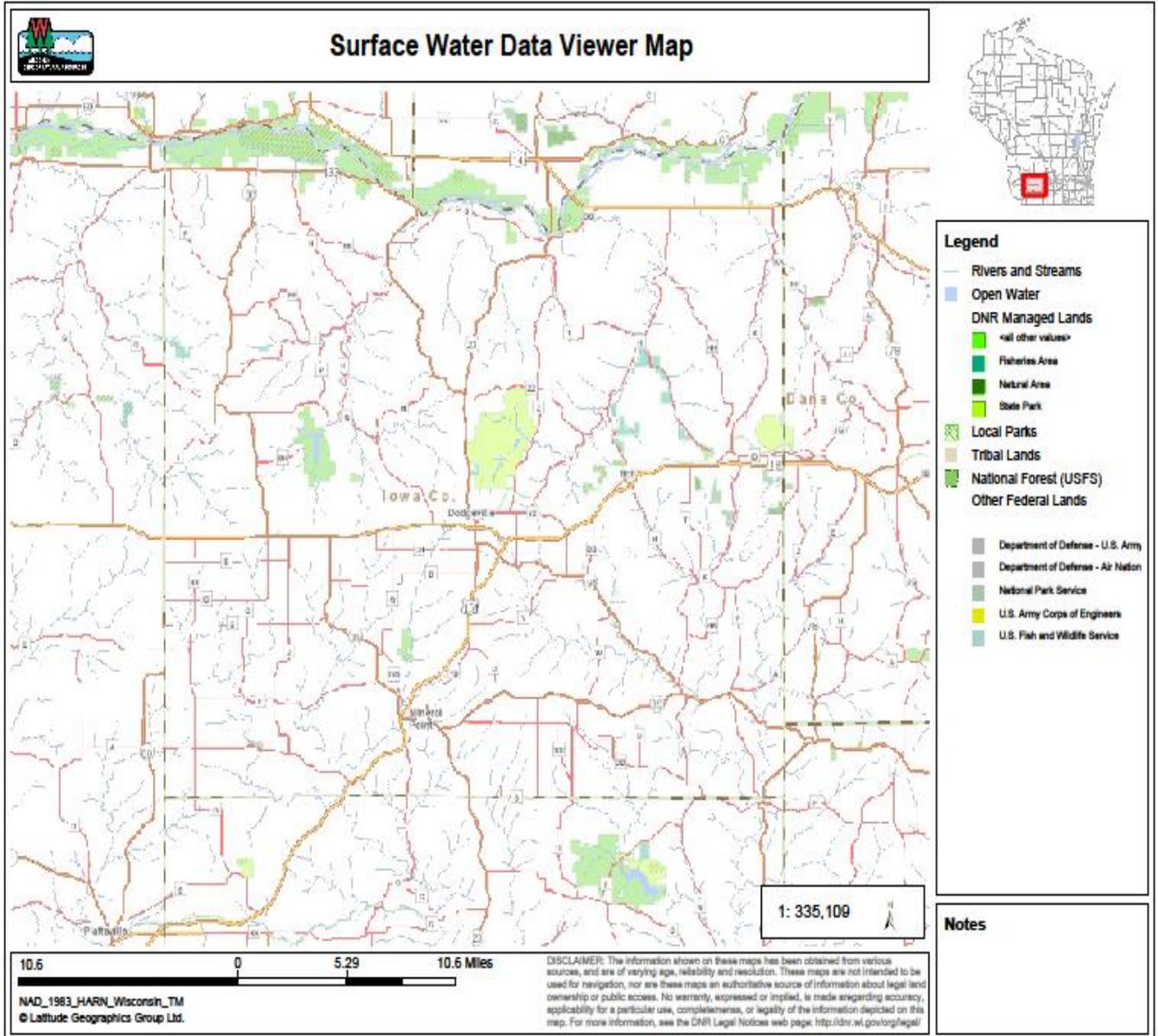


# CONCENTRATED ANIMAL FEEDING OPERATIONS (CAFO)

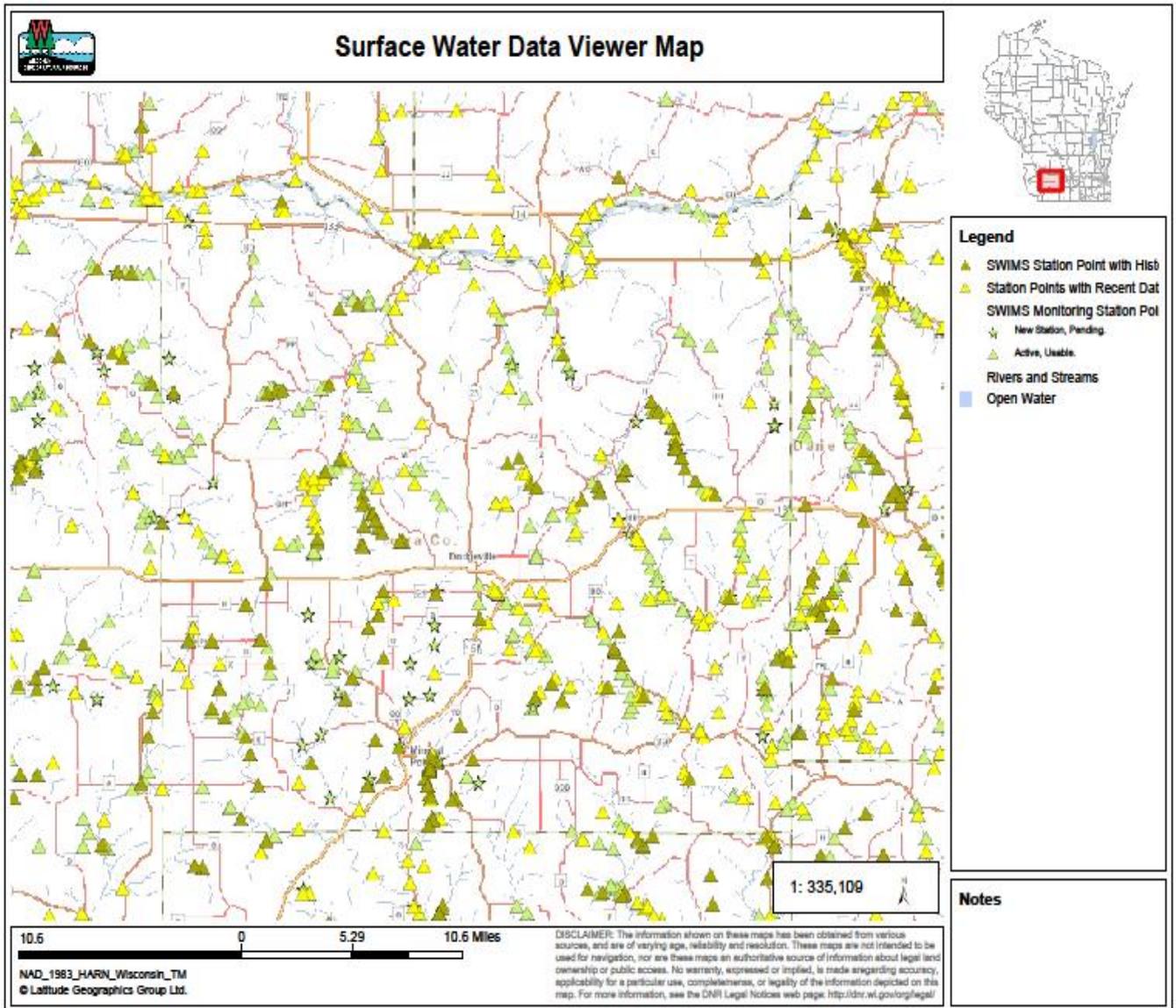


The data shown on this map have been obtained from various sources, and are of varying age, reliability and resolution. This map is not intended to be used for navigation, nor is this map an authoritative source of information about legal land ownership or public access. Users of this map should confirm the ownership of land through other means in order to avoid trespassing. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map.

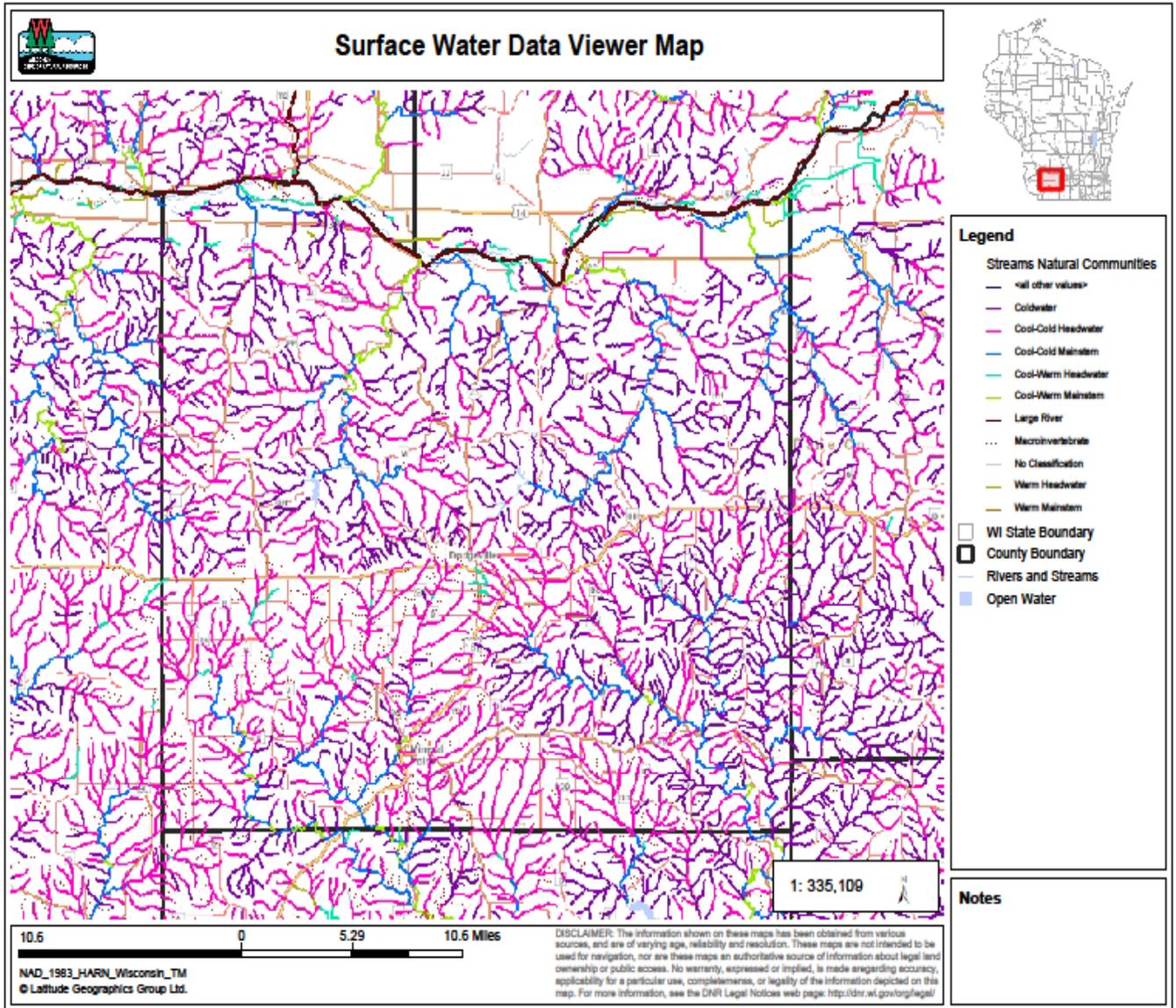
# RIVERS & STREAMS



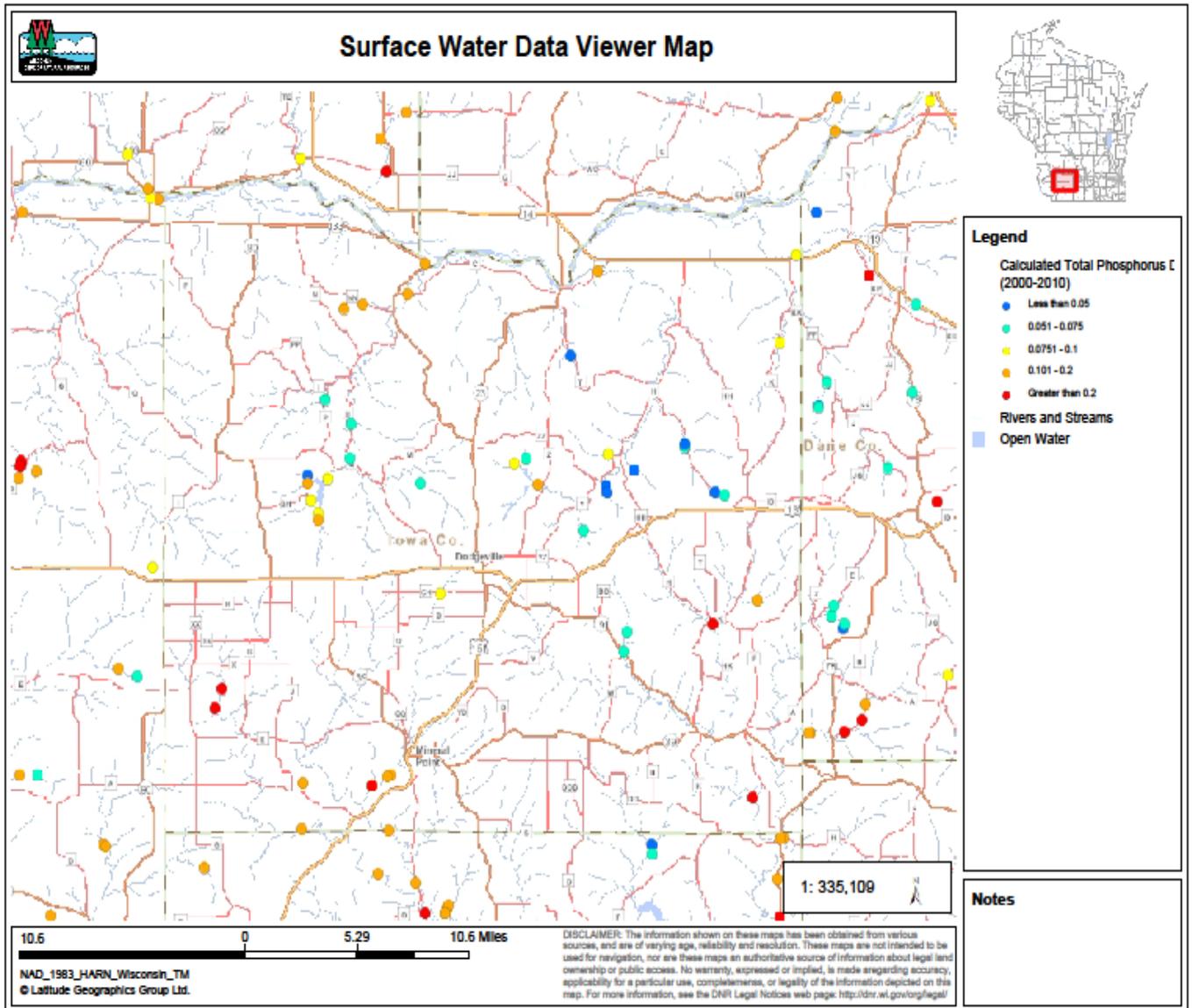
# SWIMS STATIONS



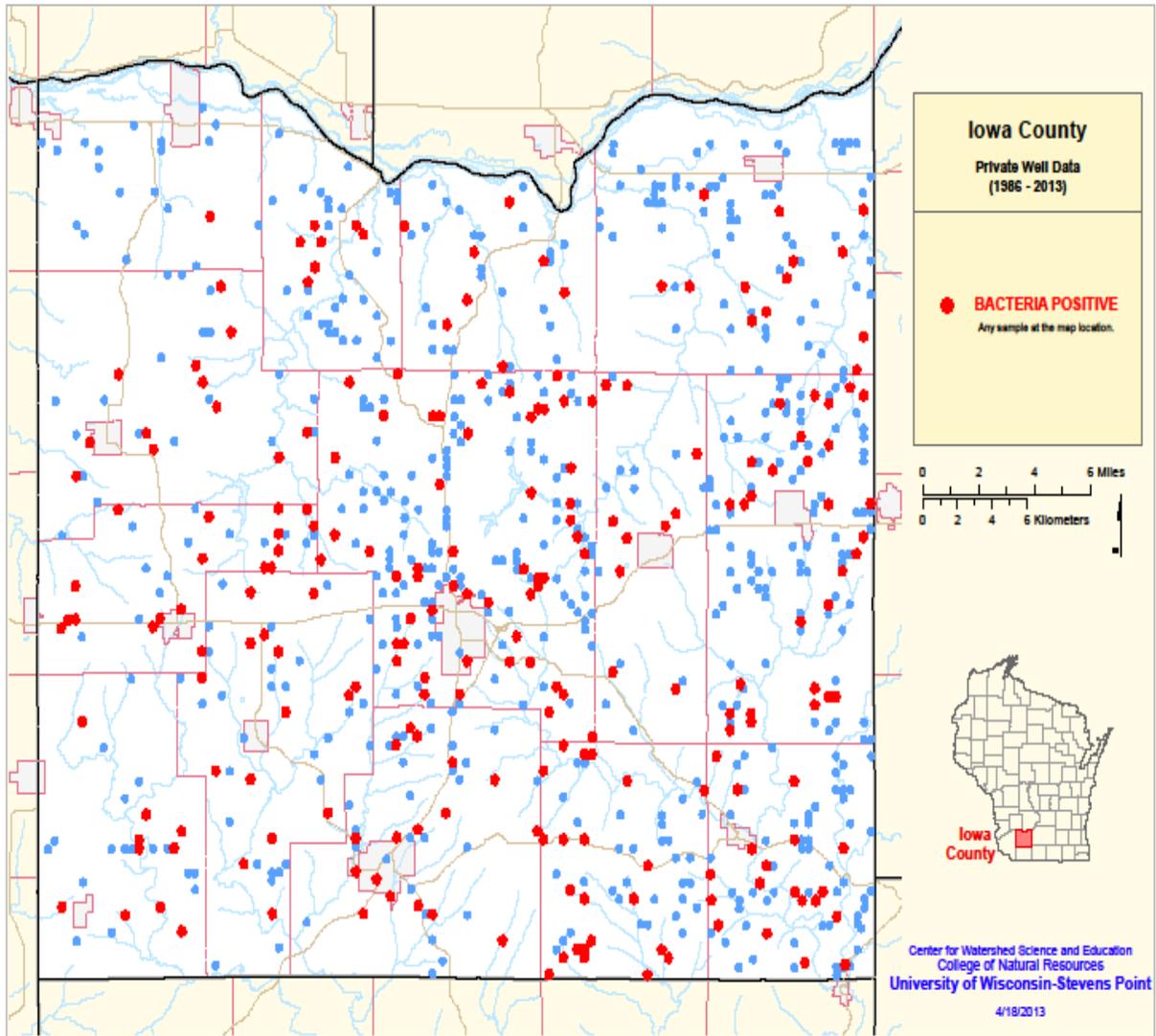
# STREAM NATURAL COMMUNITIES



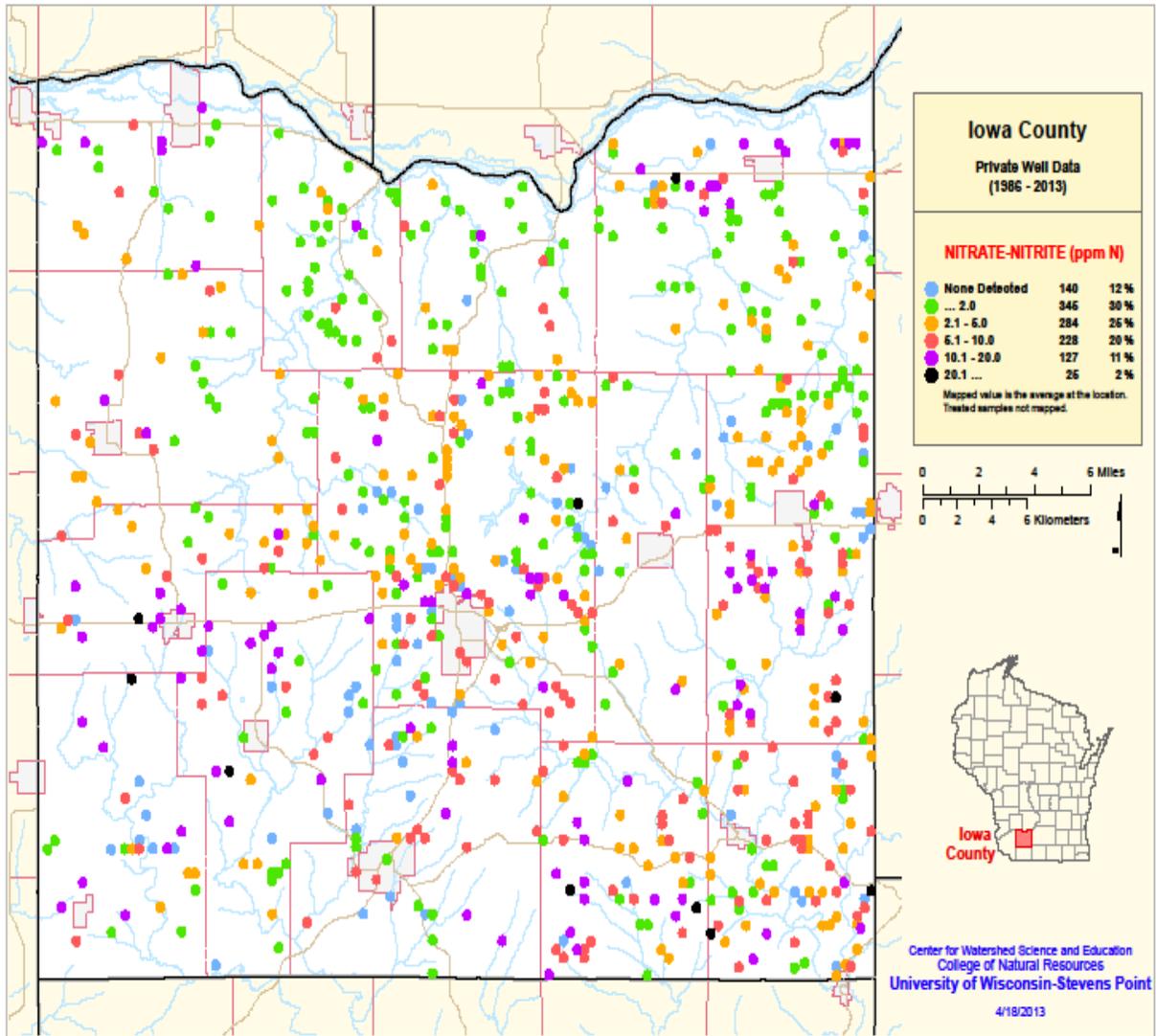
# PHOSPHORUS



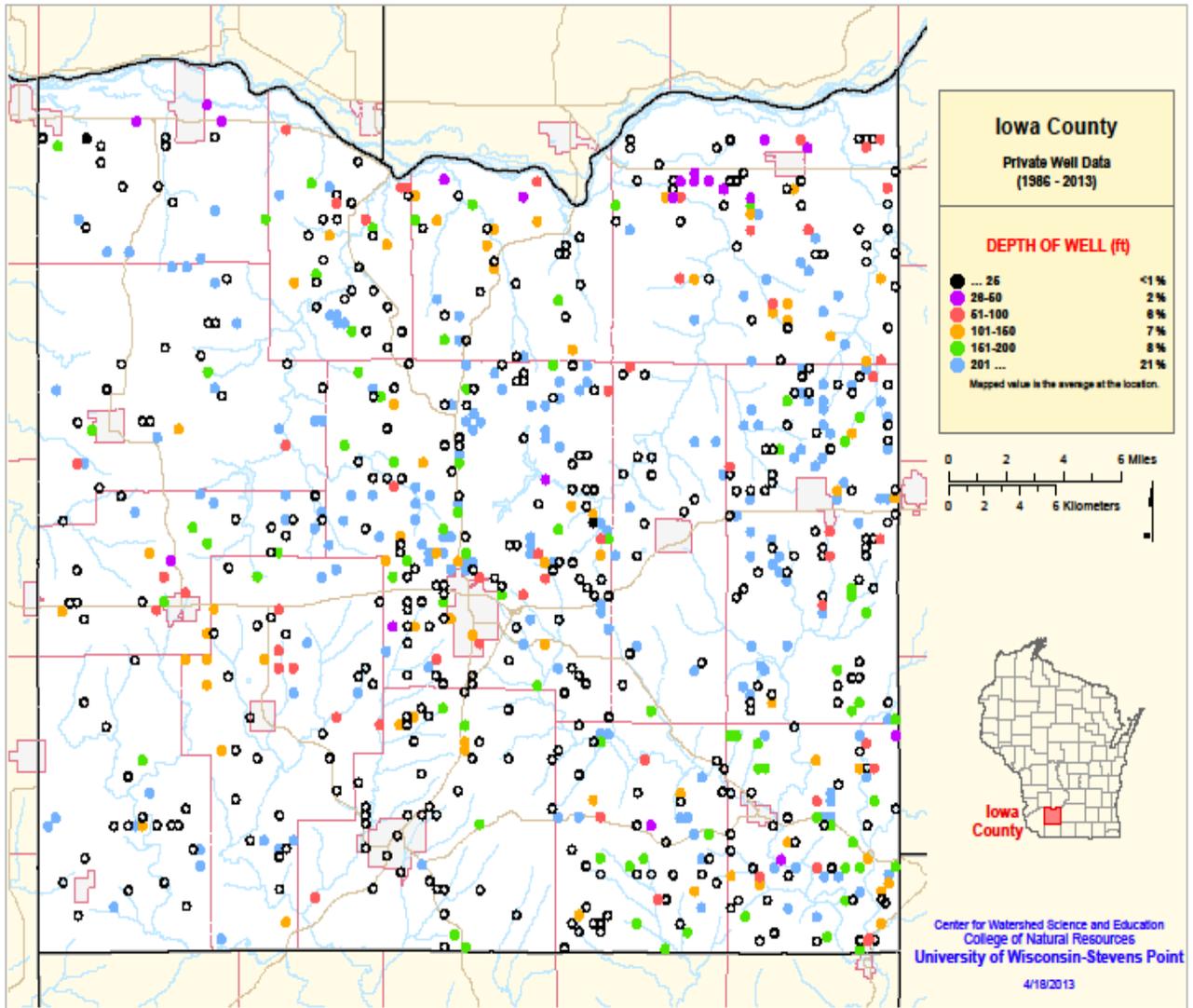
# BACTERIA POSITIVE



# NITRATE-NITRITE



# WELL DEPTHS



## APPENDIX C – DNR BASIN INFORMATION

LW-15 MILL AND BLUE MOUNDS CREEKS WATERSHED.....	98
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## MILL AND BLUE MOUNDS CREEKS WATERSHED (LW15)

This watershed is located in northeastern Iowa and western Dane County. Much of the topography of the watershed is rolling and characteristic of the driftless, or unglaciated region of the state. A part of the watershed is also on the Wisconsin River outwash plain. Population in the watershed for 2000 was estimated to be around 6,700 people. All or portions of Ridgeway, Blue Mounds, Barneveld, Mount Horeb, and Arena are in the watershed.

**Table 1: Growth in Municipalities in the Watershed**

<i>Municipality</i>	<i>1990</i>	<i>2000</i>	<i>% Change</i>
Arena	525	685	31%
Barneveld	660	1,088	65%
Blue Mounds	446	708	59%
Mount Horeb	4,182	5,860	40%
Ridgeway	577	689	19%

The primary land cover in the basin is broad-leaf deciduous forest. The percentage of land in agricultural production in the watershed is lower than in many other watersheds. Despite this, however, agriculture still covers a large percent of land in the watershed. If the watershed continues to experience such high growth rates, changes in these percentages are likely to occur. Grassland is also a major land cover in the watershed. Wetlands in the watershed are predominately small, wet meadow complexes adjacent streams although there are some larger complexes on or near the Wisconsin River.

**Table 2: Land Cover in the Watershed**

<i>Land Cover</i>	<i>Percent of Watershed</i>
Forest (Total)	49.4%
<i>Broad-Leaf Deciduous</i>	48.5%
<i>Coniferous</i>	0.9%
Agriculture	23.8%
Grassland	18.5%
Wetland (Total)	5.6%
<i>Forested</i>	2.8%
<i>Emergent/Wet Meadow</i>	2.2%
<i>Lowland Shrub</i>	0.6%
Development	0.4%
Other	2.2%

### Watershed At A Glance

**Drainage Area (m<sup>2</sup>):** 180.0

**Total Stream Miles:** 175.8

**Trout Stream Miles:** 55.7

**Sport Fishery Miles:** 27.4

**Lakes:** Birch Lake, Twin Valley Lake, Cox Hollow Lake

**Exceptional/Outstanding Resource Waters:** Bohn, Elvers, Love, Ryan, Strutt, Trout

**Municipalities:** Ridgeway, Blue Mounds, Mount Horeb, Arena

**Major Public Lands:**

- ◆ Helena Marsh Unit of LWSR
- ◆ Arena Unit of LWSR
- ◆ Governor Dodge State Park
- ◆ Tower Hill State Park
- ◆ Blue Mounds State Park
- ◆ Trout Creek State Fishery Area
- ◆ Love Creek State Fishery Area

**Concerns and Issues:**

- ◆ Nonpoint source pollution
- ◆ Urbanization
- ◆ Flood control structures
- ◆ Atrazine

**Initiatives and Projects:**

- ◆ Wild trout reintroduction
- ◆ Lake Protection Grant to construct stormwater detention basins

Water quality in the watershed has been negatively affected by nonpoint sources of pollution from both rural and urban sources. Some of these problems have been the result of overtopping manure storage pits near streams. In addition, the use of herbicides on agricultural lands in the watershed has posed a possible risk for groundwater contamination. Elevated levels of atrazine, an herbicide used on corn, has been found in some tested private water wells. Soils in the region are permeable which has allowed atrazine to reach groundwater in some locations. As a result of this threat, the portion of the watershed on the Wisconsin River floodplain and a small portion of the Dodgeville and Ridgeway Townships are in atrazine management areas. See Appendix B. Recent urbanization and development of land has increased the potential for further nonpoint pollution to area surface waters as a result of construction site erosion and an increase in stormwater runoff.

Nonpoint source pollution problems in the Mill and Blue Mounds Creeks Watershed are not new. Historically, many of the streams in this system have had problems with severe flooding and in-stream siltation as a result of their high gradients and the surrounding agricultural landuse. In an attempt to address the problem of flooding, flood control structures were built on Mill Creek and its tributaries. While these structures have had some positive results with regard to flooding, these structures have caused problems in streams. The impoundments that result from the structures have organically rich bottom sediments and can warm water and decrease its quality. They can also negatively affect the macroinvertebrate community, increase the growth of periphyton and decrease the fish habitat.

There is one permitted industrial point source in the watershed. The Mill Creek Cheese factory discharges to groundwater. In addition, the Spring Green sanitary district facility discharges to a tributary of Lowery Creek.

The Mill and Blue Mounds Creeks Watershed has a variety of good quality habitats and rare plant communities that are listed on the state's Natural Heritage Inventory, (NHI), kept by the Bureau of Endangered Resources. These communities include:

- ◆ Dry cliff
- ◆ Dry prairie
- ◆ Moist cliff
- ◆ Oak opening
- ◆ Pine relict
- ◆ Sand barrens
- ◆ Sand prairie
- ◆ Southern dry-mesic forest
- ◆ Southern mesic forest
- ◆ Ephemeral pond
- ◆ Emergent aquatic
- ◆ Floodplain forest
- ◆ Forested seep
- ◆ Shrub-carr
- ◆ Southern sedge meadow
- ◆ Fast, cold and hard stream

In addition to these special communities, the watershed is also home for a variety of rare plant and animal species including; 1 species of beetle, 5 species of birds, 4 species of dragonflies, 14 species of fish, 1 species of frog, 9 species of mussels, 44 plant species, 1 species of mammal and 2 species of leafhoppers. These plants and animals are also listed on the state's Natural Heritage Inventory (NHI).

The Helena Marsh and Arena Units of the Lower Wisconsin State Riverway are in the watershed. The Helena Marsh Unit is 919 acres and offers fishing. The Arena Unit is 1,406

acres and offers birdwatching and fishing along the river. Trout Creek (894 acres) and Love Creek (570 acres) State Fishery Areas lie in the watershed. The fishery areas offer hiking, birdwatching in addition to fishing. There are also part or all of three separate state parks in the watershed; Governor Dodge, Tower Hill and Blue Mounds. Governor Dodge State Park is approximately 5,000 acres and contains Twin Valley and Cox Hollow Lakes. Visitors can enjoy swimming, hiking, fishing, boating and camping at the park. In addition, Blue Mounds State Park also has camping and hiking and a swimming pool. Tower Hill State Park offers the opportunity to see how lead shot was made in the early 1800's by exploring the shot tower that gives the park its name.

*Note: The Dane County portion of this watershed is also discussed in the Dane County Regional Planning Commission (DCRPC) Dane County Water Quality Plan. The DCRPC plan should also be consulted for additional information, priorities and recommendations.*

#### **STREAMS AND RIVERS IN THE MILL AND BLUE MOUNDS CREEKS WATERSHED**

##### **Arneson Creek**

Limited information is available for this creek.

##### **Blue Mounds Creek**

This tributary to the Wisconsin River is fed by surface water runoff and groundwater seepage. The stream has a large volume of flow and is considered to have some potential for sport fishing, especially near its confluence with the Wisconsin River. The stream experiences problems with nonpoint source pollution. A rare aquatic species has been found in the creek in past surveys.

##### **Bohn Creek**

Bohn Creek is a spring fed tributary to Elvers Creek. The lower two miles are a Class II trout stream and an exceptional resource water (ERW). The stream has good water quality and suitable in-stream habitat to support a trout population. A cursory habitat evaluation was conducted during the summer of 2001. The evaluation found the creek to have fair water quality. The biggest problem noted during the survey was from nonpoint sources of pollution and a lack of suitable stream bottom as a result of in-stream sedimentation. An evaluation of one of the unnamed tributaries to the creek found good in-stream habitat including good stream bottom substrate.

##### **Canyon Park Creek**

Canyon Park Creek is a major tributary to Cutler Creek. The stream has one of the highest stream gradients in Iowa County which contributes to erosion and flooding problems. The creek can support a Class II brown trout fishery. The stream has problems due to hydrologic modification and nonpoint source pollution. These problems have effected trout habitat. Efforts could be made to improve the in-stream conditions of Canyon Park Creek.

##### **Cutler Creek**

Cutler Creek is a major tributary to Mill Creek in Iowa County. It is a spring fed stream and has a high gradient that has caused problems due to heavy erosion during runoff events. A

flood control structure exists on Cutler Creek near its mouth. Currently, the stream supports a Class II brown trout fishery, but, with proper management and in instream habitat improvement, the stream shows the potential to be upgraded to a Class I stream.

#### **Duesler Creek**

The creek is a spring fed tributary to Trout Creek. As a result of heavy flooding on the stream, a flood control structure was built to help control floodwaters and reduce streambank erosion. This hydrologic modification has had an impact on the stream. The creek is able to support a forage water fishery.

#### **East Branch Blue Mounds Creek**

This branch starts at the confluence of Ryan and Elvers creeks. It has a relatively low gradient and portions have been ditched. It is a flashy stream that often floods during spring melts and major storms. As a result, the stream bottom has problems with siltation. Currently, the stream is managed as a Class III trout stream but has the potential to be a Class II stream with the proper management. The stream has public ownership along about one mile of its length. This land provides a diverse mix of habitat types for wildlife and is used as a public hunting ground.

#### **Elvers Creek**

Elvers Creek is a small trout stream. The stream is classified as Class II in its lower three miles and Class III in the upper five miles. The stream and overall water quality in the stream are thought to be negatively affected by nonpoint sources of pollution, specifically streambank erosion. In addition, parts of the stream have been ditched in the past. It is thought, that with the proper management, the Class II portion could be upgraded to a Class I trout stream and the Class III portion could be upgraded to a Class II stream. Currently, there is little information available for the stream. As a result of this nonpoint source pollution and the possibility for improvement, the stream has been ranked as a high priority for nonpoint source pollution and would benefit from a nonpoint source pollution reduction project.

#### **Hubbard Creek**

Hubbard Creek is a small tributary to Mill Creek. The creek has some problems with flooding and bank erosion. Overall, the creek is able to support a forage fishery.

#### **Irish Hollow**

Irish Hollow Creek is a seepage fed tributary to Trout Creek. The creek is susceptible to heavy bank erosion. There is little in-stream habitat in the creek and overall, the creek is only able to support some warm/cool water forage fish.

#### **Kluesendorf Branch**

Limited information is available for this creek.

#### **Little Norway Creek**

Little Norway Creek is a spring fed tributary to Bohn Creek. The stream flows through a steep valley. The stream has good water quality and seems to have fairly good trout habitat and the water runs cool in the stream. The stream is not currently managed.

**Love Creek**

Love Creek is a Class I trout stream that supports the natural reproduction of brown trout. It is also considered an outstanding resource water (ORW). There is some sedimentation in the stream near the mouth. Nearly 570 acres of land are publicly owned and make up the Love Creek Fishery Area. The fishery area offers opportunities for fishing, birdwatching and hiking. The stream has been hydrologically modified and experiences some nonpoint source pollution.

**Meudt Creek**

This stream, also known as Yagers Hollow, is a seepage fed tributary to Mill Creek. The creek is not currently managed for sport fish. Over three-fourths of the watershed has been cleared for agriculture at one point and the stream has problems due to hydrologic modification which affects the stream's flow and the in-stream temperature.

**Mill Creek**

Mill Creek is a tributary to the Wisconsin River at Tower Hill State Park. It is a Class II trout stream for 4.5 miles of its length. One 4-mile section of trout water is downstream from Twin Valley Lake, the other 0.5 mile stretch is downstream from the mouth of Trout Creek. Below the last stretch of trout water, Mill Creek is considered a warm water sport fishery stream. A rare aquatic species has been found in the creek in past surveys. The stream historically had problems with flooding as a result of intensive agriculture and lumbering. Flood control structures were put into place in the watershed to help lessen the problem. Two of these structures formed Twin Valley and Cox Hollow Lakes in the upstream portion of Mill Creek. These lakes are used primarily for fish, wildlife and recreational purposes. The creek below the lakes and upstream from Trout Creek can have problems with cattle grazing and in-stream sedimentation appears to be a problem.

**Moen Creek**

Moen Creek is a spring fed tributary to Elvers Creek. The headwaters of Moen Creek begin near Mount Horeb and have been impounded to form Stewart Lake. Moen Creek is considered a Class II trout stream although the creek has the potential to support a Class I fishery if properly managed. A cursory habitat evaluation was completed in the summer of 2001. The evaluation found the creek to have fair to good in-stream habitat. The creek has good bottom substrate and good riffles and runs in some areas, but not in others. This may be attributed to the moderate nonpoint source pollution making its way to the creek from the surrounding watershed. The creek also experiences streambank erosion due to unstable banks in some areas.

Stewart Lake causes some use problems in the headwater area. The creek just below the impoundment has filamentous algae, a sign of a high nutrient load. In addition, monitoring conducted in the summer of 2001 found that the section of the creek just below the lake had lower dissolved oxygen and higher temperatures in the early morning than other locations in the creek. The creek also receives stormwater runoff from Mount Horeb. Stewart Lake County Park provides public access to the headwaters of the creek.

**Ryan Creek**

Ryan Creek is a Class II trout stream and is considered an exceptional resource water (ERW). The stream meets up with Elvers Creek in Dane County to form the East Branch of Blue Mounds Creek. The creek is affected by hydrologic modification, including the ditching of the stream to drain a nearby wetland. In addition, cattle access to the stream has created significant erosion problems and has affected in-stream habitat. The stream has been ranked as a high priority for nonpoint source pollution would benefit from a nonpoint source pollution reduction project. In 1999, LUNKERS were installed in the creek and part of the streambank was rip-rapped in an effort to improve in-stream habitat in the creek.

**Ryan Hollow Creek (Knights Hollow Creek)**

Ryan Hollow Creek is a small spring fed tributary to Mill Creek in Iowa County. The creek currently is thought to support a cold water forage fishery, but the creek may have some potential to support a Class II trout fishery. The stream receives much of its flow from White Hollow Creek. Ryan Hollow Creek has been extensively modified by erosion control dams and the creek has some habitat problems. There is limited access to Ryan Hollow Creek.

**Strutt Creek**

Limited information is available for this creek.

**Trout Creek**

Trout Creek has five miles of Class I trout waters and three miles of Class II trout waters. The eight miles of trout water are also classified as an outstanding resource water (ORW) and the stream supports the natural reproduction of brown trout. A rare aquatic species has been found in the creek in past surveys. The stream, although considered one of the best trout streams in southern Wisconsin, is threatened by an impoundment in its headwaters that threatens the downstream management of cold water fisheries. The impoundment was built as a flood control structure and affects in-stream habitat and the trout fishery by causing sediment to fill in pools and warming the water. The stream also has some problems with nonpoint source pollution and is considered a high priority for nonpoint source pollution and would benefit from a nonpoint source pollution reduction project. Baseline monitoring was conducted on the stream in the summer of 2000. Much of the stream is in public ownership as the Trout Creek State Fishery Area. The fishery area is approximately 900 acres and offers opportunities for fishing, hiking, and birdwatching. (See Birch Lake)

**Walnut Hollow Branch**

Limited information is available for this creek.

**West Branch Blue Mounds**

The West Branch of Blue Mounds is the primary tributary to Blue Mounds Creek. The creek is managed as a Class II trout stream. The stream experiences problems with nonpoint source pollution and hydrologic modification. These modifications affect stream flow, increase water temperatures and decrease the quality of in-stream habitat.

**White Hollow Creek**

White Hollow Creek is a tributary to Ryan Hollow Creek, which flows into Mill Creek. The stream is fed by seepage. The creek has been hydrologically modified and access to the stream is limited. In addition, the stream experiences some problems as a result of stream bank erosion. Overall, the creek supports a cool water forage fishery, but it may have potential as a Class II trout stream.

**Wisconsin River**

This watershed is adjacent to a portion of the Wisconsin River. For more information on the Wisconsin River, see page 90.

**LAKES IN THE MILL AND BLUE MOUNDS CREEKS WATERSHED****Birch Lake**

Birch Lake, located in Iowa County, is an impoundment of Trout Creek created in 1964 as a part of a flood control project. The lake is 11 acres and approximately 15 feet deep at its deepest point. Due to sediment loading, however, the storage capacity of the lake has been reduced. The lake has some public land surrounding it and it is a popular fishing lake that supports largemouth bass and panfish. Due to problems with excessive weedy plant and algae growth in the summer, however, recreational uses of the lake are reduced.

Birch Lake has a significant effect on water quality in Trout Creek. Temperatures recorded during the summer of 1999 found a 15 degree increase in temperature below the impoundment. In addition, water samples found that there was significant nutrient enrichment of the water below the dam. It is suspected that this nutrient loading is the result of the impoundment on the stream. In addition to its effect on the physical and chemical characteristics of the stream, the impoundment has had an effect on the biological aspects of the creek. Sampling found only one fish above the dam and warmwater and pollution tolerant fish below the dam. This may be an indication that the impoundment, in addition to warming the water, also poses a migration barrier. The impoundment was found to cause negative effects on the macroinvertebrate community below the dam. Overall, sampling conducted in 1999 and 2000 found that the impoundment causes significant effects on the cold water habitat in Trout Creek by affecting physical, chemical and biological components of the stream's ecosystem. Monitoring has determined that limited options exist for minimizing the impoundment's impacts to Trout Creek.

**Cox Hollow Lake**

Cox Hollow Lake, located in Iowa County, is an impoundment on the headwaters of Mill Creek. The lake is 96 acres with a maximum depth of 29 and is located wholly inside of Governor Dodge State Park. The lake was constructed in 1958 and was established for wildlife habitat, recreation and as a flood control structure. The lake has a problem with weed growth in the water. The fishery of Cox Hollow Lake is walleye, largemouth bass and panfish.

### **Twin Valley**

Twin Valley Lake is located in Iowa County just below Cox Hollow Lake and is an impoundment on the headwaters of Mill Creek. The lake is 152 acres with a maximum depth of 32 feet. The lake is located wholly inside of Governor Dodge State Park and was constructed in 1967 for wildlife habitat, recreation and as a flood control structure. The fishery of Twin Valley Lake is musky walleye, largemouth bass, panfish and trout. Monitoring on Twin Valley Lake began in 2001.

### **Stewart Lake**

Stewart Lake is a seven-acre impoundment at the headwaters of Moen Creek. A small county park surrounds the lake. The lake experiences algae blooms and has excessive aquatic plant growth (Day, 1985). Stormwater runoff from the village of Mt. Horeb is thought to be part of the problem. With help through funding through the Lake Protection Grant program, the City of Mount Horeb is constructing stormwater detention basins to reduce sediment delivery to the lake. Dane County has a state lake management planning grant to develop a plan to address nonpoint source pollution and to improve in-lake management techniques. Dane County and the U.S. Geological Survey have begun lake and sediment monitoring in order to better understand and address the problems of the lake.

## **RECOMMENDATIONS (LW15)**

- ◆ **Elvers Creek, Ryan Creek and Trout Creek** should be considered for nonpoint source reduction projects such as the Targeted Runoff Management program (TRM).
- ◆ The flood control structures on the Mill Creek System, including **Cutter, Love, Strutt and Trout Creeks**, should be removed to improve in-stream habitat and cold water fishery within the creeks.
- ◆ The spring ponds in the headwaters of **Blue Mounds Creek** should be removed.
- ◆ Additional funds should be pursued for the purchase of easements and fee titles to aid in streambank and in-stream habitat restoration and to increase public access to streams.
- ◆ Areas in need of critical streambank habitat improvement should be identified to determine which sections of stream in the Mill Creek/Blue Mounds Watershed would best respond to habitat restoration work.
- ◆ **Bohn Creek** should be put back into its original channel.
- ◆ Baseline monitoring should be conducted on the **East Branch Blue Mounds System**, including **Elvers, Bohn, Moen and Ryan Creeks** and on the **West Branch Blue Mounds** and the tributaries to **Mill Creek including Cutler and Love Creeks**.
- ◆ A water quality assessment of **Little Norway Creek** is needed to determine its potential as a trout stream.
- ◆ Baseline monitoring should be conducted on **Twin Valley and Cox Hollow Lakes** in Governor Dodge State Park.

- ◆ Small impoundments on cold water resources should continue to be assessed to find ways to modify the structure and improve water temperature and quality.
- ◆ Vegetation management is needed on the **Bohn Creek** system to increase habitat and expand brook trout range into the upper tributaries.
- ◆ **Blue Mounds Creek, Mill Creek, and Trout Creek** should be surveyed to determine if rare aquatic elements previously found in the streams are still present.
- ◆ Technical assistance on water quality, fisheries and watershed organizational issues should be provided to local landowners and anglers on **Trout Creek**.
- ◆ The WDNR should support Dane County's lake planning management grant for **Stewart Lake** so that monitoring activities needed to complete the project can be continued.
- ◆ A new stream classification survey should be completed for the entire **Blue Mounds Creek system**, including **Elvers, Ryan, Bohn and Moen Creeks**.
- ◆ Monitoring on the **Blue Mounds system** should be conducted. Monitoring should include continuous temperature monitoring to determine the quality and extent of trout water.
- ◆ Remove the dam on **Trout Creek** that forms **Birch Lake** to improve the habitat and fishery of the creek.

*Recommendations adapted from the Dane County Water Quality Plan (1995):*

- ◆ Stormwater management recommendations proposed in the Stewart Lake Restoration and Watershed Management Plan should be implemented.
- ◆ The Village should develop a wellhead protection program for municipal wells.
- ◆ Municipalities should improve erosion/runoff control ordinance to be consistent with Chapter 14 of Dane County Code of Ordinances if they have not already done so.
- ◆ Land application sites for wastewater biosolids should be reviewed. If located in well protection zones and potential for groundwater contamination, these sites should be relocated or groundwater monitoring and stringent design and operation requirements are recommended.
- ◆ Innovative stormwater management ideas, such as draining roof water to grassed areas, should be developed and used.

- ◆ Small impoundments on cold water resources should continue to be assessed to find ways to modify the structure and improve water temperature and quality.
- ◆ Vegetation management is needed on the **Bohn Creek** system to increase habitat and expand brook trout range into the upper tributaries.
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- ◆ The WDNR should support Dane County's lake planning management grant for **Stewart Lake** so that monitoring activities needed to complete the project can be continued.
- ◆ A new stream classification survey should be completed for the entire **Blue Mounds Creek system**, including **Elvers, Ryan, Bohn and Moen Creeks**.
- ◆ Monitoring on the **Blue Mounds system** should be conducted. Monitoring should include continuous temperature monitoring to determine the quality and extent of trout water.
- ◆ Remove the dam on **Trout Creek** that forms **Birch Lake** to improve the habitat and fishery of the creek.

*Recommendations adapted from the Dane County Water Quality Plan (1995):*

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- ◆ Innovative stormwater management ideas, such as draining roof water to grassed areas, should be developed and used.

Streams in the Mill and Blue Mounds Creeks Watershed (LW15)										Iowa and Dane Counties				Area: 180 sq miles		
Stream Name	WBC	Length (miles)	Existing Use	Potential Use	Supporting Potential Use	Codified Use and Trout Stream Classification	Proposed Codified Use	303(d) Status	Aquatic Endangered/Threatened/Species of Concern	Use Impairment		NPS Rank	Monitored/Evaluated/Unassessed	Data Level	Trend	Ref.*
										Source	Impact					
Ameson Creek	1243500	2	COLD	same	Part	DEF	same	N	N			NR	E		U	16
Blue Mounds Creek	1248400	11	WWSF	same	Full	DEF	same	N	Y	NPS	HAB	M	E		U	8, 16, 22
Bohn Creek	1251900	0-2	COLD II	same	Full	ERW	same	N	N			M	M (2001)	H2	U	1, 3, 4, 8, 15, 22, 26
		2-3	COLD II	same	Part	DEF	same	N							U	
Canyon Park Cr.	1245200	5.3	COLD II	same	Part	DEF	COLD II	N	N	HM	HAB	NR	E (1956)		I	16, 26
Cutler Creek	1245000	2.5	COLD II	COLD I	Part	COLD II	same	N	N	HM,NPS	HAB	NR	E (1968)		U	8, 16, 26
Duesler Creek	1243400	1	COLD	same	U	DEF	same	N	N	HM		NR	U		U	1, 3, 16
E.Br. Blue Mounds	1251100	5.5	COLD III	COLD II	Part	COLD III	same	N	N	HM,NPS	HAB	M	E		U	15, 23, 26
		0-3	COLD II	COLD I	Part	COLD II (ERW)	same	N	N	HM,NPS	HAB	H	E		U	1, 3, 8, 15, 18, 22, 26
Elvers Creek	1251600	3-8	COLD III	COLD II	Part	COLD III (ERW)	same	N								
		3	COLD	same	Part	DEF	same	N	N			NR	U		U	16
Irish Hollow	1243200	2	COLD	same	Part	DEF	same	N	N			NR	U		U	16
Kluesendorf Branch	1243700	1.5	COLD	same	Part	DEF	same	N	N			NR	U		U	16
Little Norway Cr.	1252000	1.3	COLD	same	Part	DEF	same	N	N	NPS	HAB	L	U		U	8, 15, 21
Love Creek	1244400	3.1	COLD I	same	Full	COLD I (ORW)	same	N	N	NPS, HM	HAB	M	E (1968)		U	8, 16, 21, 26
Meudt Creek (Yagers Hollow)	1244600	3	COLD	same	Part	DEF	same	N	N	HM	FLOW,TEMP, P., HAB	NR	U		U	8, 16
Mill Creek	1215600	0-16.4	WWSF	same	Full	DEF	same	N	Y	HM,NPS	HAB, FLOW	M	E (1968)		U	8, 16, 26, 22
		16.4-16.9	COLD II	same	Part	COLD II	same	N							U	
		16.9-28.5	COLD	same	Part	DEF	same	N							U	
		28.8-32.8	COLD II	same	Part	COLD II	same	N							U	
		32.8-37	COLD	same	Part	DEF	same	N							U	

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Mill & Blue Mounds Cr Watershed (LW15)

Stream Name	WBC	Length (miles)	Existing Use	Potential Use	Supporting Potential Use	Codified Use and Trout Stream Classification	Proposed Codified Use	303(d) Status	Aquatic Endangered/Threatened Species of Concern	Use Impairment		NPS Ran	Monitored/Evaluated/Unassessed	Data Level	Trend	Ref.*	
										Source	Impact						
Moen Creek	1252100	2	COLD II	COLD I	Part	COLD	same	N	N	NPS	HAB	M	M (2001)	H2	U	1, 3, 4, 8, 15, 26	
Ryan Creek	1251400	0-4	COLD II	same	Full	COLD II (ERW)	same	N	N	NPS	HAB	H	E		U	1, 3, 8, 15, 26	
		4-6	COLD II	same	Part	DEF	same	N									
Ryan Creek (Knights Hollow)	1242500	4	COLD	COLD II	Part	DEF	same	N	N	ACC, HM	HAB	NR	U		U	16	
Strutt Creek	1244500	1.8	COLD I	same	Full	COLD II (ORW)	COLD I	N	N	CL	HAB	M	E		I	16, 21, 26	
Trout Creek	1243100	0-5	COLD I	same	Full	COLD I (ORW)	same	N	Y	NPS, HM	HAB, TEMP, MIG	H	M (2000)	B4, H3	U	8, 11, 16, 21, 26	
		5-8	COLD II	same	Full	COLD II (ORW)	same	N							U		
Walnut Hollow Br.	1251000	2	COLD	same	Part	DEF	same	N	N	HM	FLOW, TEMP, HAB	NR	U		U	21	
W.Br. Blue Mounds	1250400	0-6	COLD II	same	Part	COLD II	same	N	N	HM	FLOW, TEMP, HAB	NR	E		U	8, 16, 26	
		6-8	U	U	U	DEF	same	N							U		
White Hollow Cr.	1242600	3	COLD	COLD II	U	DEF	same	N	N	HM, ACC	HAB	NR	U		U	16	
Unnamed streams		52.1				DEF		N									
Total Stream Miles		175.8															
		38.6															
		9.9															
		35.3															
		10.5															
		27.4															
		54.1															

\*The numbers in this column refer to the References found in the corresponding Watershed Narrative. See Appendix J: "How to Read the Stream Tables," in Chapter 7 of the State of the Lower Wisconsin River Basin Report.

Lakes in the Mill and Blue Mounds Creeks Watershed (LW15)													Iowa and Dane Counties			
Lake Name	WBIC	County	Surface Area (Acres)	Max Depth	Lake Type	Winterkill	Access	SH	Hg	MAC	LMO	TSI	Lake Plan or Prot	P Sens	Comments	
Cox Hollow Lake	1246500	Iowa	96	30	DG		BF		R					1		
Twin Valley Lake	1245800	Iowa	152	32	SE		BR		R	EWM				1		

See Appendix K: "How to Read the Lake Tables," in Chapter 7 of the Lower Wisconsin State of the Basin Report.

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## BLACK EARTH CREEK WATERSHED (LW17)

The Black Earth Creek watershed covers 103 square miles in western Dane County and the northeast corner of Iowa County. Although much of the watershed was not glaciated, the hydrologic characteristics were profoundly shaped by glaciation. While the majority of the watershed lies in the driftless area, the headwaters of the Black Earth Creek and its tributary, Halfway Prairie Creek lie in the smooth rolling landscape of glaciated land. The glaciated morainal landscape contains features such as depressions and kettles and encompasses the major spring areas that feed the Black Earth Creek. The forested slopes, plus some key internally drained areas, provide excellent infiltration of rainwater and subsequent groundwater recharge that are responsible for the baseflow dominated quality of Black Earth Creek and most of its tributaries. One notable area of geologic interest is in the Ice Age Reserve Cross Plains Unit where morainal rocks not present in other meltwater formations litter a deep ravine carved by glacial meltwater.

A majority of the Black Earth Creek Watershed is rural but the eastern edge of the watershed is seeing increasing residential and commercial development as people look to move to more rural settings and commute to work. This is seen as the City of Madison has experienced only a 5.27 % growth, while surrounding villages and towns, including the villages of Cross Plains, Black Earth, and Mazomanie, have grown at a faster rate.

**Table 1: Growth in Municipalities in the Watershed**

<i>Municipality</i>	<i>1990</i>	<i>2000</i>	<i>% Change</i>
Black Earth	1,248	1,320	5.8%
Cross Plains	2,362	3,084	30.6%
Mazomanie	1,377	1,485	7.8%

The basin is largely dominated by agriculture. The major agricultural practices in the watershed are dairying and cash cropping. Other major land cover in the basin is deciduous forest and grassland. There are few wetlands in the watershed and those that do exist are concentrated along streams. Most of these wetlands are emergent/wet meadow, forested, open water, scrub/shrub, aquatic bed,

### Watershed At A Glance

**Drainage Area (m<sup>2</sup>):** 103.0

**Total Stream Miles:** 75.0

**Trout Stream Miles:** 21.8

**Sport Fishery Miles:** 11.5

**Lakes:** Indian, Marion Lakes and Salmo Pond

**Exceptional/Outstanding Resource Waters:** Black Earth and Garfoot Creeks

**Municipalities:** Cross Plains, Black Earth and Mazomanie

**Major Public Lands:**

- ◆ Black Earth Creek Fishery Area
- ◆ Ice-Age Reserve
- ◆ County Parks (Festge, Halfway Prairie, Indian Lake, Salmo Pond, and Walking Iron)

**Concerns and Issues:**

- ◆ Development Pressure
- ◆ Nonpoint Source Pollution
- ◆ Stormwater Impacts
- ◆ Development of Infiltration Areas
- ◆ Atrazine

**Initiatives and Projects:**

- ◆ BECCO
- ◆ BECWA
- ◆ River Protection Grant
- ◆ Former Nonpoint Source Priority Project
- ◆ Ice Age Trail
- ◆ Purchase of development rights or conservation easements; Natural Heritage Land Trust, American Farmland Trust, Dane County
- ◆ Black Earth Creek Watershed Land Conservation Coalition
- ◆ Stormwater and development study on Brewery Creek
- ◆ Dane County Black Earth Creek Resource Area
- ◆ USGS gauging stations

and filled/drained wetlands and many of them have been modified due to agricultural drainage, channelization and construction. These areas are subject to flooding and seasonal high water tables. The Black Earth Creek Watershed actually has over 300 acres of mitigated or restored wetlands. Most of these are on private lands, although many of these are WDNR wetland easement areas. Three of the mitigation/construction sites are in cooperation with the federal Wetlands Reserve Program (WRP). Dane County administers much of the federal and state programs that distribute money for wetland restoration.

**Table 2: Land Cover in the Watershed**

<i>Land Cover</i>	<i>Percent of Watershed</i>
Agriculture	43.14%
Forest (Total)	37.41%
<i>Broad-Leaf Deciduous</i>	36.51%
<i>Coniferous</i>	0.90%
Grassland	14.66%
Wetland (Total)	2.28%
<i>Emergent/Wet Meadow</i>	1.86%
<i>Forested</i>	0.33%
<i>Lowland Shrub</i>	0.09%
Development	1.48%
Other	1.04%

The Black Earth Creek Watershed has a variety of good quality habitats and rare plant communities that are listed on the state's Natural Heritage Inventory, (NHI), kept by the Bureau of Endangered Resources. These communities include:

- ◆ Dry prairie
- ◆ Dry-mesic prairie
- ◆ Southern dry forest
- ◆ Southern dry-mesic forest
- ◆ Emergent aquatic
- ◆ Floodplain forest
- ◆ Shrub-carr
- ◆ Southern sedge meadow

In addition to these special communities, the watershed is also home for a variety of rare plant and animal species including; 1 species of beetle, 2 species of butterflies, 1 species of leafhopper, 10 species of fish, 1 species of lizard, 8 species of mussels, 31 plant species, 4 species of moths, 3 species of mammals, and 1 species of snake. These plants and animals are also listed on the state's Natural Heritage Inventory.

State and local governments own about 1,330 acres, or about 2% of the watershed, of park and natural areas land in the watershed. A majority of the publicly owned land in the watershed is owned and managed by Dane County. The following chart details the acres of public land in the Black Earth Creek Watershed.

Area	Acres
<hr/>	
State	
Black Earth Creek Fishery	332
Ice-Age Reserve-Cross Plains	129
<i>Total</i>	<i>461</i>
<hr/>	
County Parks and Natural Areas	
Festge	126
Halfway Prairie	1
Indian Lake	442
Salmo Pond	6
Walking Iron	320
<i>Total</i>	<i>895</i>
<hr/>	
Local Government Parks and Natural Areas	
Village of Black Earth	0
Village of Cross Plains	26
Village of Mazomanie	8
<i>Total</i>	<i>34</i>
<hr/>	
<b><i>Total Acres of Parks and Natural Areas</i></b>	<b><i>1,330</i></b>

Information from the Dane County Parks and Open Space Plan Report 2000

Although the watershed doesn't have any designated wildlife areas or preserves, the Black Earth Creek Fishery is being managed to support the hunting of fox, white-tailed deer, cottontails, fox and gray squirrels, blue-winged teal, mallards and pheasants, and trapping for mink, muskrats, raccoons and beaver (Black Earth Creek Fishery Area Master Plan). Otherwise, most animal populations dwell on the private lands within the watershed. Several county parks provide wildlife viewing as does the Ice Age Scientific Reserve.

Increasing development in the watershed is a major threat to water quality and natural resource health in the watershed. Development increases the percentage of land that is impervious to water. Currently, the three municipalities in the watershed direct their stormwater runoff into Black Earth Creek. This influx of warm unfiltered water often picks up pollutants and can be detrimental to the aquatic community. Development can also increase the amount of sediment that enters the creeks as a result of construction site erosion.

In addition to increasing pollution or thermal problems as a result of stormwater runoff, stormwater runoff can also change the hydrology of a stream. The rapid urban development in the headwaters of Black Earth Creek has raised concerns that groundwater flow, and therefore baseflow, to the creek may decrease, affecting water quality and habitat. In addition, stormwater runoff may change the overall volume of water in a creek, and the speed at which the water enters the creek. Fish managers in the region state that one of the most the

pressing issues facing the fish habitat in the watershed is the effect of encroaching development on ground water recharge and withdrawal.

Careful well planning throughout the watershed will protect the baseflow of the streams in the watershed. In addition, Best Management Practices (BMPs) can reduce the effects of stormwater. Some of these practices include extended detention basins, wet ponds, infiltration trenches and basins, porous pavement, water quality inlets, grassed swales, and filter strips. The Village of Cross Plains has installed infiltration basins, one of the most effective BMPs, near parking lots and streets. The water is directed to the basin where it is filtered through gravel and allowed to evaporate and soak into the ground before the excess is directed into the creek. This process not only filters out pollutants, but it gives the water a chance to cool before entering the creek. The Villages of Black Earth and Mount Horeb have also been working with the county to address this issue.

Agricultural practices are a major contributor of nonpoint source pollution and can have a major impact on water quality. Eroding agricultural lands, eroding stream banks, animal lots, and fields spread with manure are the main sources of pollution in the watershed. In addition, the delievery of pesticides and herbicides from broken tile lines is also a concern. Best Management Practices (BMP's) such as conservation crop rotations, conservation cover crops, minimum tillage, contour strip cropping and grassed waterways have been employed to combat pollution in the watershed. Other conservation techniques include enrollment in the CRP or CREP program. This program pays farmers to leave marginal land in conservation easements.

Drinking water and groundwater is also threatened by possible atrazine contamination and about half of the watershed lies in an atrazine prohibition area. These areas indicate that elevated levels of atrazine, an herbicide used on corn, has been found in some tested private water wells. Soils in these areas are permeable which has allowed atrazine to reach groundwater in some locations. See Appendix A.

#### **Projects to Address Nonpoint Pollution in the Watershed**

**Development Study:** Development pressures in the Village of Cross Plains have prompted the Dane County Land Conservation Department (LCD) to join with the EPA and USGS to study the water quality impacts from an 80 acre development that will surround a stretch of Brewery Creek. Study sites both up and down stream have been selected to verify runoff from the construction along the creek. Discharge and associated solids concentration and loads, as well as total and dissolved phosphorus concentrations are being measured. The collection of data is being conducted collected prior to construction, during construction, and after construction. The conclusions drawn from the study will assess the water quality impacts of construction site erosion, evaluate the hydrologic changes to the stream as a result of this development and may help local policy makers direct future developments to preserve water quality.

**The Priority Watershed Project:** In 1989, the watershed was the subject of a nonpoint source priority watershed study by the WDNR, in which water quality was evaluated and

steps to improve water quality were described in the Black Earth Creek Priority Watershed Plan. The 1985 plan for nonpoint pollution control identified several problems to be addressed by the installation of Best Management Practices (BMP) on about 18% of the agricultural land in the watershed. As a part of the project, approximately 300 landowners were contacted and inventoried. From the results of the inventory, pollutant sources were identified and water quality goals were set. One hundred and eight landowners signed cost-share agreements for the installation of conservation practices to address these pollutant sources. Through 1998, a total of \$125 million in local assistance and cost share grants was spent. BMPs included wetland restoration, grassed waterways, grade stabilization structures, rock crossings, fencing, LUNKER structures, fencing, rip rap, and shaping and seeding. Barnyard pollution problems were reduced by the installation of diversion structures, settling basins, filter walls and vegetated filter strips. Pollutant load reduction goals have been exceeded by an average of 61% and, as shown in the table below, in some cases project goals were exceeded by as much as 89%. A detailed discussion of the nonpoint source problems and actions for this watershed can be found in *A Plan for the Control of Nonpoint Sources and Related Resource Management in the Black Earth Creek Priority Watershed* or in Appendix B of the *Dane County Water Quality Plan* prepared by the Dane County Regional Planning Commission (DCRPC).

**Table 3: Black Earth Creek Priority Watershed Project (Project date: 1989 - 2000)**

<i>Pollutant Source</i>	<i>Barnyard (Phosphorus)</i>	<i>Upland Sediment</i>	<i>Gully</i>	<i>Streambank</i>
Inventoried Load	3,752 lb.	426,726 tons	11,800 tons	39,010 tons
Goals (Reduce By)	1,876 lb. (50%)	213,363 tons (50%)	5,900 tons (50%)	19,505 tons (50%)
*Reduction	3,198 lb.	327,499 tons	10,555 tons	32,756
% Reduction of goal	170%	153%	179%	140%
% Reduction of total load	85%	77%	89%	70%

\*Represents local, county, state, and federal funding sources.

Source: Dane County Land Conservation Department

Point sources of pollution also have potential to affect the natural resources in the Black Earth Creek Watershed. Currently, there are three municipalities that release surface water discharges into the Black Earth Creek. Since the publication of the last Dane County Water Quality Plan in 1995, significant changes have occurred in wastewater treatment plants (WWTP) in the Black Earth Creek watershed. The Dane/Iowa County Sewerage Commission WWTP has replaced the Black Earth and Mazomanie facilities. The facility started up in June 2000 and discharges to Black Earth Creek. Because of the additional processes at the new plant, there is a significant improvement in the water quality that is discharged into the creek. Additionally a pathogen-free, "Class A" sludge is produced and can be used in the home garden. In Cross Plains, the sludge treatment system has been improved and the sludge will be processed by the new Dane/Iowa WWTP and turned into "Class A" sludge which can be used in the home garden. The Cross Plains WWTP also has constructed chemical phosphorus removal facilities and is removing phosphorus from their effluent. Capitol Sand and Gravel

discharges to Black Earth Creek and is the only industrial point source discharge in the watershed. This company operates a large sand and gravel operation near Black Earth Creek and discharges wash water to Black Earth Creek. In the past, this discharge has led to excessive warming of the water in the creek. The company has undertaken measures to alleviate this problem. Expansion of the operation may pose a threat to maintenance of baseflow to the stream. There is one landfill in the watershed that is a Superfund cleanup site.

*Note: The Dane County portion of this watershed is also discussed in the Dane County Regional Planning Commission (DCRPC) Dane County Water Quality Plan. The DCRPC plan should also be consulted for additional information, priorities and recommendations.*

### **STREAMS AND RIVERS IN THE BLACK EARTH CREEK WATERSHED**

#### **Black Earth Creek**

Black Earth Creek is a 27-mile long tributary to Blue Mounds Creek. The headwaters of the stream are heavily influenced by channelization and support only warm water forage fish. The rest of the creek, however, has a high fisheries value. The lower 11.5 miles support a warm water sport fishery that includes smallmouth bass although the section between Black Earth and Mazomanie may be able to be reclassified to cold water. Upstream from this warm water section, the stream is a cold water trout fishery and is fed by a series of spring complexes including a large cold water spring upstream from the Village of Cross Plains (Festge Springs) and numerous, other smaller springs. This stretch of Black Earth Creek is on the state's list of Outstanding and Exceptional Resource Waters (ORW/ERW) and supports a large population of naturally reproducing brown trout as well as a few native brook trout. The stream is stocked down stream with rainbow trout to increase additional opportunity for the anglers. A rare aquatic species has also been found in this stream during past stream surveys.

Overall, Black Earth Creek has high natural alkalinity, average temperatures that range from 40-65 degrees Fahrenheit, a substrate of rubble and gravel, and relatively stable flows—these qualities combine to provide a highly productive aquatic ecosystem for the naturally reproducing brown trout population that exists in Black Earth Creek. As a result, the stream has been rated as one of the best 100 trout streams in the nation by Trout Unlimited. Public access is available at many road crossings and several village owned and WDNR properties.

Despite its good quality, however, the entire stream is vulnerable to agricultural and urban runoff as well as permitted point source discharges. Agricultural sources of runoff include cropland erosion, barnyard runoff and manure spreading on fields. Although this agricultural nonpoint source pollution has in many cases been addressed through the Priority Watershed Project for Black Earth Creek which is in its final stages, the stream is still at risk when these agricultural sources are poorly managed. In addition, the increasing development in the villages and in the watershed as a whole bring with it the threat of increased stormwater runoff and groundwater withdrawal. In particular, stormwater runoff from the Village of Cross Plains and other developments threaten the future of Black Earth Creek and its tributaries.

These nonpoint sources of pollution can have significant impacts on the water quality the stream and the overall population of fish. This was evidenced by a fish kill that took place during the summer of 2001. The fish kill occurred after a heavy rain event and was likely due to low dissolved oxygen levels in the stream. This event most likely overloaded the stream with pollutants from urban streets and agricultural lands. Sampling conducted throughout the summer of 2001 found that chlorine may have been a part of the problem in the creek. There were levels of chlorine detected that were over twice the limit at which it is acutely toxic. In addition, during a major rainfall, from 75% to almost 100% of total phosphorus was soluble phosphorus. Soluble phosphorus is typically a raw source of the nutrient similar to those found either in fertilizers or manure. The conditions that caused the fish kill could reoccur on the stream if the stream remains vulnerable to sources of agricultural and urban runoff.

Due to its value as a fishery resource and its location, Black Earth Creek has been the focus of many other projects. Currently, there are three USGS gauging stations on the creek located at CTH KP at Cross Plains, on a tributary to the creek at Cross Plains, and at the Village of Black Earth. These stations provide “real-time” USGS data on the internet including flow, river stage, and water temperature.

In addition, USGS in partnership with the WDNR are doing a study “Evaluation of the Effectiveness of Low Impact Development Practices. The study looks at low-impact development practices designed to reduce the volume of runoff. These practices include the reduction of impervious areas and the development of infiltration devices. The study relies on data on water level, precipitation and water temperature. Water quality samples for runoff events will be analyzed for total and suspended solids and total phosphorus. The project is expected to run from July 1998 to September 2005.

Annual trout population counts and an annual insect survey on Black Earth Creek were conducted as a part of the Priority Watershed Program that concluded in 1999. The stream has been monitored as a part of the state’s baseline monitoring initiative. Monitoring efforts are currently on-going on the stream.

Keys to the protection and maintenance of the creek rely on reducing the stream’s vulnerability to runoff, protecting recharge areas, establishing buffers along the stream to filter out nonpoint pollution, controlling stormwater runoff, and enhancing streambank and in-stream habitat.

#### **Brewery Creek**

Brewery Creek is a 2.7-mile tributary to Black Earth Creek at Cross Plains. The creek provides important habitat for forage fish and for small brown trout. This habitat, however, is affected by modifications such as dredging and ditching. These activities also increase the sediment loading. As a tributary to Black Earth Creek, nutrient and organic enrichment to Brewery Creek eventually adds to Black Earth Creek’s nonpoint source pollution problems.

The creek is subject to flooding and low summer flows. These problems may be exacerbated by increasing development in Cross Plains where additional stormwater runoff will contribute

a larger volume of water and pollutants to the creek and increased pumping may affect baseflow conditions.

The stormwater situation is being addressed in the development study that is being conducted by Dane County Land Conservation Department and the EPA, which focuses on the effects of urbanization and stormwater on water quality, see [page 284](#). Brewery Creek is also designated as a “priority stream” in the Dane County Open Space Plan that prioritizes it for funding to acquire land and protect the stream bank.

In addition, monitoring has been conducted on the creek for many years as a result of the significance of the Black Earth Creek system and the watershed’s status as a Priority Watershed Project. These results, when compared with results collected in 1999 through 2000 indicated improved water quality in Brewery Creek. It is suspected that this improvement is the result of the installation of agricultural best management practices along the creek as a result of the Black Earth Creek Priority Watershed project that took place from 1985 to 1996. It is important to try to minimize the potential impact that increased residential development could have on the stream. Urban stormwater runoff could potentially reverse the effect of the work completed as a result of the nonpoint priority watershed project.

Currently, there are two USGS gauging station on the creek located upstream from Cross Plains and at Cross Plains. These stations provide “real-time” USGS data on the Internet including flow, river stage, and water temperature.

The creek has also been surveyed as a part of the WDNR’s baseline monitoring efforts. In addition the creek should be monitored in cooperation with Dane County to assess overall development impacts. Other keys to the protection and maintenance of the creek rely on protecting recharge areas, improving the riparian corridor, and controlling stormwater runoff, and enhancing streambank and in-stream habitat.

#### **Garfoot Creek**

This 3.8-mile tributary flows into Black Earth Creek a few miles west of Cross Plains. Although changes to the stream bed have occurred and nonpoint source pollution has affected fish habitat, this creek supports cold water aquatic communities and is listed as an exceptional resource water (ERW). Overall, Garfoot Creek is in pretty good shape and is improving due to the Priority Watershed Project.

The cold spring fed waters support brown trout and access is available from bridges and WDNR properties. Recently, wild brook trout have been stocked into this stream in an effort to establish a naturally reproducing population. The creek has been surveyed as a part of the WDNR’s baseline monitoring effort. In addition, a cursory habitat evaluation was conducted during the summer of 2001. The evaluation found the creek to have good in-stream habitat. Erosion and other nonpoint sources of pollution from the surrounding watershed were noted, but not thought to be major problems.

The creek's fish population should continue to be monitored to determine the success of the wild brook trout program. In addition, the stream should be evaluated to determine if habitat work is needed.

#### **Halfway Prairie Creek**

Halfway Prairie Creek is an 11-mile tributary that originates at Indian Lake and flows to Black Earth Creek on the west side of the Village of Mazomaine. Ditching and sedimentation have caused habitat problems on the creek. Currently the creek is listed as an impaired water body (on the 303 (d) list due to sedimentation and loss of instream habitat) but with the restoration of some of the natural stream courses and a reduction in non-point source pollution, the water quality could be improved to support a cold water fishery. Access is available from Indian Lake and bridges.

#### **Vermont Creek**

Vermont Creek is 6 miles long and joins the Black Earth Creek just west of the Village of Black Earth Creek. Many of the banks of creek are lined with wetlands and wet meadows. The creek has been evaluated as a cold water stream that supports natural reproduction of brown trout. There are some ponded spring heads on the creek and sections of the creek have been channelized. Although a cursory habitat evaluation conducted on a headwater section of the creek during the summer of 2001 found the creek to have good in-stream habitat, habitat work is needed in the channelized portion of the stream. Erosion and other nonpoint sources of pollution from the surrounding watershed were noted, but not thought to be major problems.

Habitat restoration, sediment control, and reduction of nonpoint control would greatly enhance the water quality and fish habitat of this stream. Habitat improvement work should be completed in the WDNR owned section of the creek and serve as a pilot project. Access is available from road crossings and WDNR properties and easements.

#### **Wendt Creek**

Wendt Creek lies between Halfway Prairie Creek and Black Earth Creek and is 6 miles in length. It meets Halfway Prairie Creek to the east of Mazomanie. Like many of the other tributaries; pollution and loss of habitat are the concerns and are responsible for this creek being placed on the list of impaired waters (303(d)). This subwatershed has several wetland areas and some are under WDNR easements or ownership.

### **LAKES IN THE BLACK EARTH CREEK WATERSHED**

#### **Indian Lake**

This 66-acre lake is the focus of a Dane County Park. It is an isolated water body with a mean depth of 4.6 feet and is adjacent to approximately 10 acres of wetlands and wet meadows. Halfway Prairie Creek flows from the west end of the lake and Indian Lake Park surrounds the lake. The lake is hypereutrophic and subject to summer algae blooms. Due to the installation of an aeration system that is run in the winter months, the winter fish kills that were once common in the lake have been almost entirely eliminated. Although the water is adversely affected by nonpoint pollution from agricultural practices, it is believed that

changes in activities in the watershed will not have a large affect on the water quality. Stocking in the last decade has established a naturally reproducing population of blue gill and large mouth bass. Access is provided from Indian Lake Park. The Dane County Open Space plan recommends that land be acquired around the park to buffer the lake and include the wetlands that contain the springs that form the headwaters of the lake.

#### **Marion Lake**

Marion Lake is a small lake on the southeast edge of Mazomaine, between the railroad and Highway KP. Currently the WDNR is not involved in the management of this lake although local sportsmen's clubs occasionally stock the lake to improve recreational opportunities.

#### **Salmo Pond**

Salmo Pond is located on the south side of USH 14 west of Cross Plains. The pond is a deep, abandoned gravel pit and is 6 acres with a maximum depth of 15 feet. It is stocked with rainbow trout and contains naturally reproducing populations of bass, blue gill, pumpkinseed. The pond is adjacent to a section of the Black Earth Creek Fishery Area.

### **RECOMMENDATIONS (LW17)**

- ◆ Continue to identify potential projects that will address the significant rural and urban runoff issues in the watershed.
- ◆ Work with farmers and other partners whenever possible to address **Black Earth Creek's** vulnerability to nonpoint source issues such as the manure spreading, construction site erosion, cropland erosion, urban stormwater runoff and barnyard runoff.
- ◆ Continue the evaluation monitoring (siltation study) on **Black Earth Creek**.
- ◆ Conduct stream and watershed ranking to determine the nonpoint source pollution priorities in the watershed.
- ◆ Need to protect wetlands in the watershed, particularly those that act as recharge areas for streams.
- ◆ Survey **Garfoot Creek** to track the success of the wild brook trout program/stocking in the stream.
- ◆ Use state owned land along **Vermont Creek** as a pilot habitat restoration project.
- ◆ Monitor **Black Earth Creek** to determine if the rare aquatic species previously found in the stream is still present.
- ◆ Critical habitat sites in the watershed should be identified and targeted for habitat improvement work.
- ◆ **Garfoot Creek** should be remeandered.
- ◆ Future developments should include infiltration practices as a means of controlling stormwater impacts and ensuring groundwater recharge.

- ◆ Future developments in the watershed should assess the impact that future wells will have on the baseflow of streams in the watershed.
- ◆ Citizen groups in the watershed, such as the Black Earth Creek Watershed Association and the Black Earth Creek Conservation Organization, should continue to be supported in their efforts to protect the watershed.
- ◆ Identify critical areas needed to create and maintain a buffer along streams in the watershed, specifically along **Black Earth Creek**, and work to acquire these areas through fee title or easement as they become available.
- ◆ The permitting of large animal operations and the spreading sites needs to be updated.
- ◆ **Black Earth Creek** should be evaluated to determine if the current classifications of ERW and ORW are appropriate or need to be updated and changed.

*Recommendations adapted from the Dane County Water Quality Plan (1995):*

- ◆ Municipalities should improve erosion/runoff control ordinance to be consistent with Chapter 14 of Dane County Code of Ordinances, if they haven't already done so.
- ◆ Those municipalities that do not have a stormwater management plan should develop and implement one.
- ◆ Evaluate deicer use and snow storage practices for potential water quality impacts, and if necessary, adopt written salt use management policy.
- ◆ Municipalities that do not have a wellhead protection program for wells should adopt one.
- ◆ Expand coverage of village wetland zoning ordinances to be consistent with Dane County's ordinance regulating all wetlands over 2 acres.
- ◆ Review land application sites for wastewater biosolids. If located in well protection zones and potential for groundwater contamination, these sites should be relocated or groundwater monitoring and stringent design and operation requirements are recommended.
- ◆ Innovative stormwater management ideas, such as draining roof water to grassed areas, should be developed and used.
- ◆ Conduct periodic point source assessment monitoring near the Capital Sand and Gravel discharge point site to determine if the discharge is having an adverse impact on water quality of **Black Earth Creek**.

**Streams in the Black Earth Creek Watershed (LW17) Dane and Iowa Counties Area: 103 sq miles**

Stream Name	WBIC	Length (miles)	Existing Use	Potential Use	Supporting Potential Use	Codified Use and Trout Stream Classification	Proposed Codified Use	303(d) Status	Rare Aquatic Species	Use Impairment		NPS Rank	Monitored/ Evaluated/ Unassessed	Data Level	Trend	Ref.*	
										Source	Impact						
Black Earth Creek	1248600	0-11.5	WMWSF	same	Part	WMWSF	same	N	Y	NPS,PSI,PSM, DEV,URB,HM	HAB,TEMP, FLOW	NA	M (2001)	B4, H2	U	10, 16, 22	
		11.5-17.5	COLD II	same	Full-thr	COLD II/IRW	same	N							U		
		17.5-23.5	COLD I	same	Full-thr	ERW/2	same	N							U		
		23.5-27	WMWFF		Part	DEF	same	N							U		
Brewery Creek	1250200	0-0.7	WMWFF	same	Not	DEF	same	N	N	HM,NPS,DEV, URB	HAB	NA	M (2001)	B2	U	10, 12, 16, 22	
		0.7-2.7	LFF	same	Not	DEF	same	N							U		
Garfoot Creek	1249900	3.8	COLD I	COLD I	Part	COLD II/ERW	same	N	N	HM,NPS,SB	HAB	NA	M (2000, 2001)	B4, H2	I	7, 10, 16, 22	
		0-8	WMWFF	same	Not	DEF	same	Y	N	HM,NPS	HAB	NA	E	B2	U	10, 16, 22	
Halfway Prairie Cr.	1248800	8-11	WMWFF	same	Part	DEF	same	N							U		
		0-4	COLD III	COLD II	Part	COLD III	same	N	N	HM,NPS	HAB,TEMP	NA	M (2001)	B2, H2	U	7, 10, 16, 22	
Vermont Creek	1249200	4-6	COLD II	same	Part	COLD II	same	N							U		
		0-6	WMWFF	same	Not	DEF	same	Y	N	HM,NPS	HAB	NA	E		U	10, 16, 22	
Unnamed streams		18.5				DEF	same	N							U		
Total Stream Miles		75															
		9.8															
		8															
		4															
		11.5															
		21.2															
		2															
		18.5															

\*The numbers in this column refer to the References found in the corresponding Watershed Narrative. See Appendix J: "How to Read the Stream Tables," in Chapter 7 of the State of the Lower Wisconsin River Basin Report.

Lakes in the Black Earth Creek Watershed (LW17)											Dane and Iowa Counties				
Lake Name	WBIC	County	Surface Area (Acres)	Max Depth	Lake Type	Winterkill	Access	SH	Hg	MAC	LMO	TSI	Lake Plan or Prot	P Sens	Comments
Indian Lake	1249000	Dane	66	6	SE	Y	T	C				61	PLAN	2	aeration & harvesting proj.
Stewart Lake	1252300	Dane	7	13	SP		T	X				47	PROT/ PLAN		

See Appendix K: "How to Read the Lake Tables," in Chapter 7 of the Lower Wisconsin State of the Basin Report.

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