GREEN COUNTY

LAND AND WATER RESOURCE MANAGEMENT PLAN

June 2011

Green County Land and Water Resource Management Plan

was developed by the

Green County
Land and Water Conservation Department

under the administrative leadership of the

Green County
Land and Water Conservation Committee

Oscar Olson, Chairman
Russ Torkelson, Vice-Chairman
Ron Syse
Ken Hodgson
Gordon Klossner
Dean Kaster

Green County
Land and Water Conservation Department

Todd Jenson	Tonya Gratz	Chris Newberry
County Conservationist	Technician	Technician

Members of the Local Workgroup

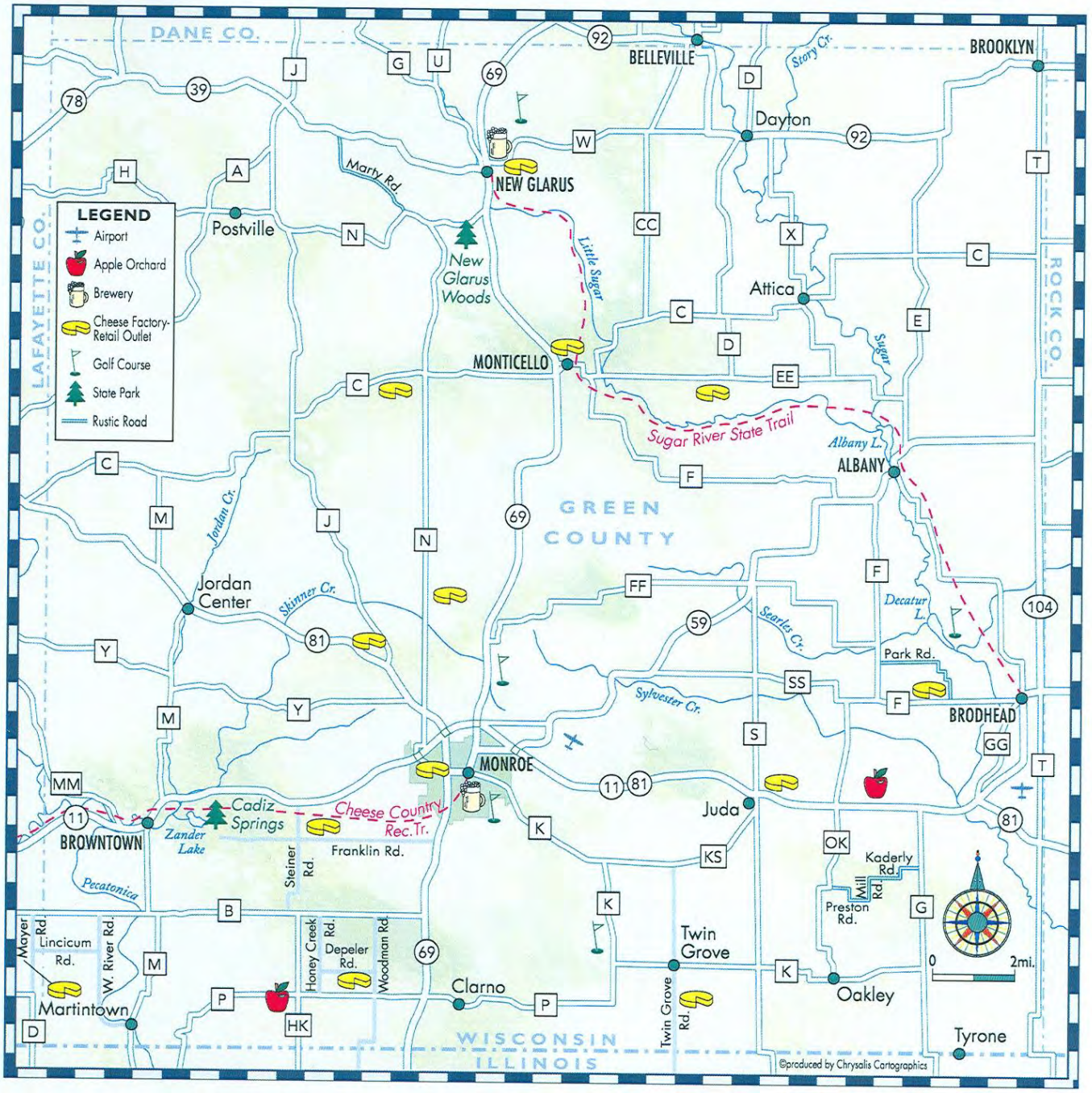
Jason Thomas, NRCS District Conservationist
Teresa Zimmer, FSA County Executive Director
Adam Wiegel, Zoning Administrator
Mark Mayer, UWEX - Dairy/Livestock Agent
Peggy Compton, UWEX-Basin Educator for Natural Resources
Nicholas Webster, DNR Game Warden
James Amrhein, DNR Water Resources Management Specialist
Cory Secher, DNR Forester

Members of the Citizens Advisory Committee

Dave Wisnefske, member of Pheasants Forever
Erik Onsrud, member of Green County Conservation League
Paul Beach, realtor
Rod Allen, excavator contractor
John Dieckhoff, dairy farmer
Dan Roe, cash grain farmer
Scott Schmidt, beef farmer
John Ott, Drainage District board chairman
Brad Williams, CAFO (large scale farm) owner- operator/ farmer

A public hearing was held June 2, 2011 at 12:30pm at the USDA Service Center, 1627 4th Ave West, Monroe to approve the final draft of the Land and Water Resource Management Plan.

GREEN COUNTY



Executive Summary

In Wisconsin, Counties have been assigned statutory authority to plan and implement conservation programs to meet local needs. State law requires each county to develop a County Land and Water Plan. This plan has been developed to meet those requirements and to serve as a guide for local conservation efforts, administered by County, State, and Federal agencies.

A review of Green County's soil and water resources show that there is a trend in the county to increase agriculture production and wildlife habitat, yet still have space for rural developments. The points of interest in the Sugar-Pecatonica State of the Basin Report include non-point source pollution, preserving rural character, groundwater contamination, and wildlife habitat and protection. The watersheds of Green County are detailed with maps and special characteristics of individual streams.

The local workgroup set eight priorities that the LWCD will work on. They are soil erosion reduction; streambank and fish habitat improvement; nutrient management; groundwater protection; manure storage and barnyard runoff control; woodlands, wetlands, and wildlife management; industrial waste spreading; and education. Each priority is explained in detail and its goals listed. These priorities and goals will be accomplished through coordination with local, state, and federal agencies and also with the help of private organizations.

The NR151 Performance Standards are identified and local implementation is discussed. There are a variety of programs through the USDA, DNR and DATCP that offer cost share funds to incorporate and meet NR151 standards.

The components to the local process of implementing NR151 start with defining a priority farm, dispensing information and educating the landowners, and then monitoring and evaluation to assess our progress towards goals. Other components are: financial considerations within NR151, on site farm visits, documentation and NR151 status report, maintaining public records and landowner notification, technical assistance and cost sharing for voluntary and non-voluntary participation, re-evaluation of parcels for compliance, enforcement actions, and the process for appeal of a non-compliance decision.

The eight priorities are listed in the ten-year management plan, the biggest being soil erosion reduction and education, fit others well. While reducing erosion on streambanks we also incorporate fish habitat and encourage stream buffers. Nutrient management and manure storage/ barnyard runoff control are essential in groundwater protection. By working on these priorities, we will be working towards compliance with NR151. The NR151 assessment form and definitions are included to evaluate landowner's compliance.

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INTRODUCTION

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) and the Wisconsin Association of Land Conservation Employees (WALCE) developed a document entitled "Recommendations for Wisconsin's Nonpoint Source and Soil and Water Resource Programs".
The document you are reading is a second update to our 1999 Land and Water Resource Management Plan. 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.

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. It is required to be updated every five years.

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

GREEN COUNTY OVERVIEW

Geography

Green County is situated in south central Wisconsin. It is bordered by Illinois to the south, Lafayette County to the west, Dane County to the North, and Rock County to the east. The square district consists of 374,625 acres or 585 square miles. Of this acreage, 307,000 are currently in farmland with 240,000 acres of it being cropped. The county seat, Monroe, is located in the south central part of the county.

Green County lies partly in the unglaciated area commonly referred to as the driftless area and partly in the glaciated part of Wisconsin. Most of the western part of the county is in the driftless area. The Pecatonica River and the Sugar River are the two major drainage basins within the county. Most land in Green County was originally covered by a central hardwood forest along with scattered areas of oak savanna, although about one-third was prairie.

A definite ethic of caring for the land has existed in Green County since the first settlers in the early 1800's. However, in the midst of this prosperous agricultural area, the soil, which is the basic resource of agriculture, is being eroded almost twice as fast as it is being replenished.

Cropland soil loss due to sheet and rill erosion currently averages 4.4 tons per acre per year for the county as a whole. The average "T" value of Green County is three. "T" value is the abbreviated form of tolerable soil loss. It represents the rate of sheet and rill erosion which may occur without diminishing the long term productivity of the soil. Current data shows that 61.5% of the county is being farmed at or below "T". 92% of Green County landowners participate in USDA programs and they need only meet a soil loss that is two times the average "T" value. This significantly drives up the average soil loss, but any conservation plan revisions are written to "T"- no matter their program participation.

Over one-half of a million tons of excessive soil erosion are presently occurring each year in Green County due to sheet and rill erosion. Although seemingly massive, this amount of excessive erosion is often hard to detect on a given field in a given year because of the relatively thin layer of soil it represents. Onsite damages from this erosion are mainly in the long-term loss in soil productivity due to changes 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 increased use of herbicides and pesticides; although, it has cost the farmer extra dollars to make up for the lost natural fertility.

Soils

Green County General Soil Characteristics

The soils of Green County may be grouped into soil associations. A soil 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 the eight soil associations present in Green 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. Dodgeville-Edmund Association

Moderately deep to shallow, nearly level to moderately steep soils that have a clayey subsoil; underlain by dolomite bedrock.

This association is in the central and northwestern parts of the county. It consists of gently sloping to moderately steep soils on uplands and silty valley fill.

The association covers about 15 percent of the county.

2. New Glarus-Sogn Association

Moderately deep to shallow, gently sloping to moderately steep soils, some of which have a clayey subsoil; underlain by dolomite or sandstone.

This association is mostly in the northern and western parts of the county. It consists of gently sloping to very steep soils on uplands and gently sloping soils made up of valley fill. Soils in this association are moderately deep to shallow over dolomite or sandstone.

This association occupies about 43 percent of the county.

3. Fayette-Tama Association

Deep, nearly level to sloping soils that have a silty subsoil and substratum; on benches in valleys.

This association is west of the Sugar River, south of Albany, and west of Brodhead. It is on a high bench left by the glacial Sugar River as it meandered across the valley.

This association occupies about 3 percent of the county.

4. Dunbarton-Whalan Association

Shallow and moderately deep, gently sloping to moderately steep soils that have a loamy and clayey subsoil over loam till; underlain by dolomite.
This association is mostly in the southern one-third of the county on uplands and high benches. Slopes are gently sloping to moderately steep. Many different kinds of soils

formed in many different kinds of materials in this association. Except for major soils, however, the proportion of each individual soil is relatively small in respect to the overall association.

This association covers about 14 percent of the county.

5. Hebron-Saylesville Association

Deep, nearly level to gently sloping soils that have a loamy and clayey subsoil and substratum; in basins that were formerly lakes.

This association is on very low to high benches in old lake basins. It is mostly in the Sugar River valley east of Albany and north of Brodhead. Another very small area is southwest of Browntown.

This association occupies about 1 percent of the county.

6. Orion-Huntsville-Ettrick Association

Deep, nearly level and gently sloping soils that are silty throughout; on flood plains and in low areas.

This association is on low benches and bottoms in stream valleys throughout the county. The soils are subject to flooding.

The association covers about 14 percent of the county.

7. Durand-Myrtle-Rockton Association

Moderately deep and deep, gently sloping to moderately steep soils that have a loamy subsoil and substratum; on glaciated uplands.

This association is in the southern part of the county on uplands and high benches. The soils are gently sloping to moderately steep. Natural vegetation is prairie grasses. Many different kinds of soil formed in many different kinds of material in this association. Except for major soils, however, the proportion of each individual soil is relatively small in respect to the overall association.

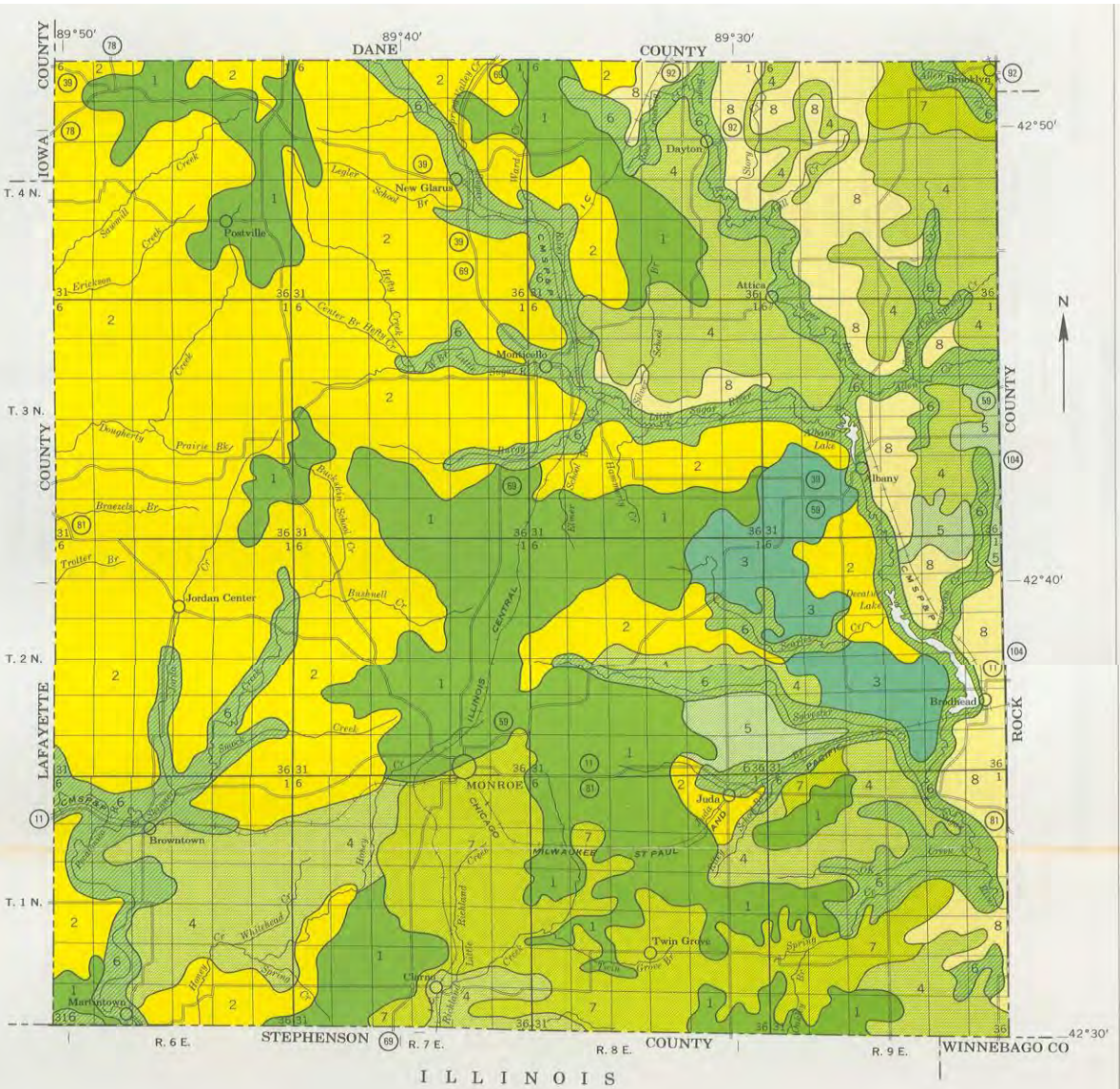
This association covers about 6 percent of the county

8. Dickinson-Meridian Association

Deep, nearly level to sloping soils that have a loamy subsoil; underlain by outwash sand or sand and gravel.

This association is on benches of Sugar River, Allen Creek, Story Creek, and Little Sugar River. Slopes are predominantly nearly level and gently sloping.

This association occupies about 4 percent of the county.



SOIL ASSOCIATIONS

1. Dodgeville-Edmund association: Moderately deep to shallow, nearly level to moderately steep soils that have a clayey subsoil; underlain by dolomite bedrock
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Compiled 1972

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

UNIVERSITY OF WISCONSIN, DEPARTMENT OF SOIL SCIENCE;
WISCONSIN GEOLOGICAL AND NATURAL HISTORY SURVEY;
AND WISCONSIN AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP

GREEN COUNTY, WISCONSIN

Scale 1:190,080

1 0 1 2 3 4 Miles

Land Capability Classes

A widely used system of classification of soils primarily for agricultural 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 all soils in eight capability classes. This risk of soil damage or limitations in use becomes greater in progressing from Class I thru Class VIII. 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 pasture, woodland and wildlife. Soils in Class VIII generally are non-productive for agricultural purposes and are recommended for wildlife habitat.

CAPABILITY CLASSIFICATION BY ACREAGE

Capability Class	Total Acres	% of County
I	6,259	1.7%
II	127,855	34.1%
III	107,187	28.6%
IV	71,399	19.1%
V	1,915	0.5%
VI	31,057	8.3%
VII	28,515	7.6%
VIII	112	0.03%

Sugar/ Pecatonica Basin

All of Green County's eight watersheds fall into the Sugar- Pecatonica River watershed. The following four issues are taken from the Department of Natural Resources' *Sugar-Pecatonica State of the Basin Report.*

Summary of Basin Issues of Concern, Priorities and Recommendations

Overall, the major natural resource issues in the basin can be grouped into four main categories: Non-point source pollution, Preserving Rural Character and Protecting Farmland, Groundwater Protection, and Habitat Protection.

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.

Recommendations:

- Assist landowners in implementing best management practices on the land throughout the basin to reduce non-point source pollution from soil erosion and stormwater runoff. These agencies should help land owners research and apply for grants such as the state Targeted Runoff Management Grant (TRM) or federal Environmental Quality Improvement Project (EQIP) programs to secure funding to encourage the installation of these practices. ***Who****: DNR, county land and water conservation departments (LWCD), Natural Resources Conservation Service (NRCS)*

- Implement NR 151 performance standards to minimize sediment delivery to surface waters. ***Who****: DNR and LWCD*

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.

Recommendations:

- Work with local municipalities in developing and enforcing stormwater management plans. Begin this process early in the planning stages of

development rather than reacting to approved plans. ***Who****: DNR, regional planning agencies, and municipalities [Green County LWCD suggests to add also rural residential developers and townships]*

- Implement NR 152 performance standards to reduce erosion from stormwater and building construction sites. ***Who****: DNR, LWCD, and municipalities*

- Conduct workshops with landowners, developers, and city officials on runoff management techniques. ***Who****: DNR, LWCD, NRCS*

- Develop a variety of runoff management techniques and conduct workshops for landowners, developers, and city officials to promote these techniques. ***Who*****:** *DNR, LWCD, UW-Extension (UWEX), DATCP, 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.

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, LWCD, Future Farmers of America (FFA), schools, and NRCS*

Preserving Rural Character And Protecting Farmland

Issue: Growth of urban areas, particularly in portions of the Upper Sugar River and West Branch Sugar River Watersheds, people moving into rural areas, and the expansion of large farms ranked high on the list of concerns of people in the basin.

Objective: Provide support and guidance to municipalities that are experiencing growth in order to preserve the rural character of the landscape and ensure that natural resources are protected.

Recommendations:

- Work with local and regional agencies to formulate stormwater management plans and ensure proper enforcement of these plans. ***Who****: DNR, UWEX, regional planning agencies, municipalities*

- Ensure that the objectives of regional planning, including the preservation of farmland, are incorporated into sewer service planning and amendments. ***Who****: Municipalities*

Objective: Provide support for local and county planning efforts dealing with growth in populations and urban sprawl.

Recommendations:

- Provide recommendations for regional planning, review growth plans, encourage alternatives to road expansion that leads to increased growth along these routes, fragmentation of the landscape, etc. ***Who****: DNR, regional planning agencies*

- Municipalities and townships should evaluate their zoning ordinances to determine how development should be addressed. ***Who****: Local governments*

- Work with local communities to prevent parcelization of larger tracts of land and prevent development of smaller tracts into permanent residences. ***Who****: Regional planning agencies, local governments*

- Support local agencies and other groups in efforts to purchase development rights, easements, and open space. ***Who****: DNR, local governments, conservation organizations*

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.

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*

- 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, LWCD, NRCS*

- Encourage development of "home-owner" education programs devoted to protection of the environment. ***Who****: DNR, UWEX, schools, LWCD, NRCS*

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.

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****: LWCD, NRCS, UWEX, DNR, and Wisconsin Rural Well Association (WRWA)*

- Promote well-driller education. ***Who****: DNR, UWEX, NRCS, LWCD*

- Increase awareness of the location of atrazine prohibition zones ***Who****: DNR, LWCD, UWEX, NRCS*

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

Recommendations:

- Identify and clean-up former mining and mine processing sites that are potential pollution sources. ***Who****: LWCD, Wisconsin Geological and Natural History Survey (WGNHS), Southwest Badger Resource Conservation and Development (SWRC & D), UW-Platteville*

- Promote the proper abandonment of unused wells by providing well abandonment demonstrations and financial support. ***Who****: DNR, UWEX, LWCD, NRCS*

- 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, other basin partners, LWCD, UWEX, NRCS*

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

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, LWCD, UWEX, local communties*

- Educate developers and citizens on the importance of protecting recharge areas. ***Who****: DNR, LWCD, 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, Dane, Green, Iowa, Lafayette and Rock Counties, 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.

Recommendations:

- Place priority on monitoring named streams in watersheds that currently do not have a known nonpoint source priority ranking so they may become eligible for nonpoint source programs and grant moneys. ***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*

- Conduct stream classification monitoring in conjunction with the triennial standards review on those streams in which a permitted discharge occurs to determine the current health and status of the fishery. If the status has

changed, make note of them in Administrative Codes NR 102 and 104. ***Who**: DNR*

- Plan monitoring activities in the basin and share data on an annual basis. ***Who**: DNR basin staff and DNR Bureau of Integrated Science Services*

- Enlist the help of local groups, schools, and volunteer monitors to collect data and information on streams in the basin. ***Who**: DNR, UWEX, LWCD 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.

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. [The Green County LWCD also suggests emphasizing conservation programs for tax purposes. Grasslands that are not in programs are currently being taxed as "undeveloped"- this shouldn't always be the case.] ***Who**: resource agencies and non-profit groups*

- Work with private landowners in the Sugar-Pecatonica Basin 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 [such as rotational grazing] and projects within the Sugar-Pecatonica Basin that will increase habitat for pheasants, quail, and other game birds as well as grassland songbirds. ***Who**: DNR, NRCS, LWCD, Farm Service Agency (FSA), conservation organizations*

- Continue program of prescribed burning to promote the health of natural prairie species. *Who: DNR, LWCD, NRCS, 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.

Recommendations:

- Identify streams in the Sugar-Pecatonica Basin for habitat improvement and stream bank protection, restoration and/or acquisition of riparian lands. See watershed narratives for recommended streams. ***Who****: DNR, LWCD, conservation groups, and individuals*

- Protect and/or restore riparian wetlands. ***Who****: DNR, LWCD, NRCS, conservation organizations, landowners, and local governments*

- Protect spring heads and headwater tributaries that provide water to cold water streams in the basin. ***Who****: DNR, LWCD, NRCS, 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, LWCD*

- 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*

- Reestablish "native" fisheries in streams with suitable habitat. ***Who****: DNR, conservation organizations, LWCD, NRCS*

- Encourage soil testing for cropland to encourage the development of nutrient and pesticide management plans. ***Who****: DNR, DATCP, LWCD, NRCS, UWEX*

- Develop and enact stormwater 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.

Recommendations:

- Survey the Sugar and Pecatonica Rivers for problems with 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, LWCD, NRCS, FSA*

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

Recommendations:

- Make basin resource information accessible to all interested citizens through public gatherings, participation in stakeholder meetings, newsletters, and the internet. ***Who****: DNR*

- 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*

- 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.

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 at 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.

Recommendations:

- Evaluate streams to determine their potential 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 Watershed Management Staff*

- Increase recreational opportunities for all people though 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*

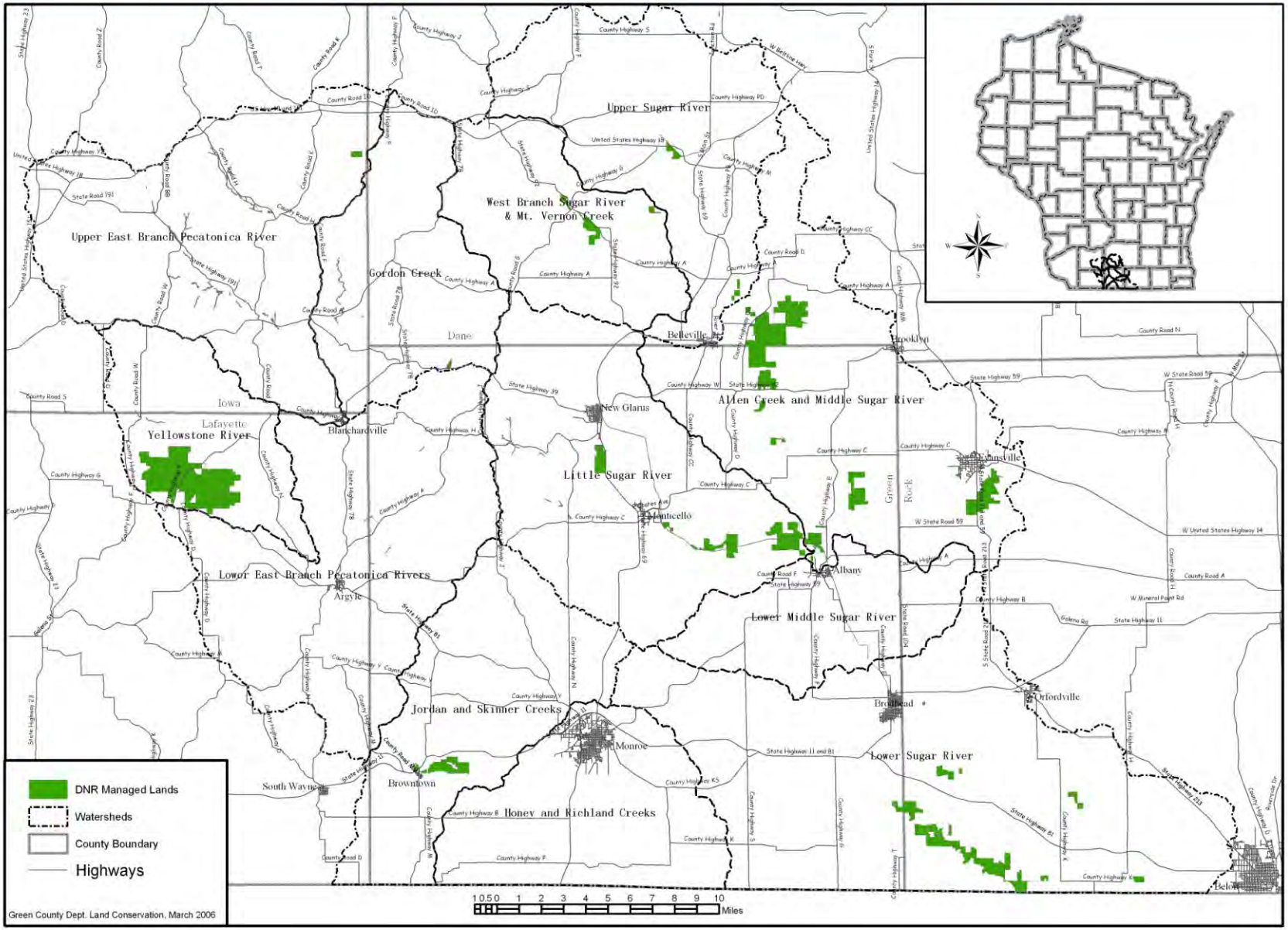
Green County Watersheds

The rest of this chapter is devoted to maps and descriptions of the eight different watersheds located in Green County.

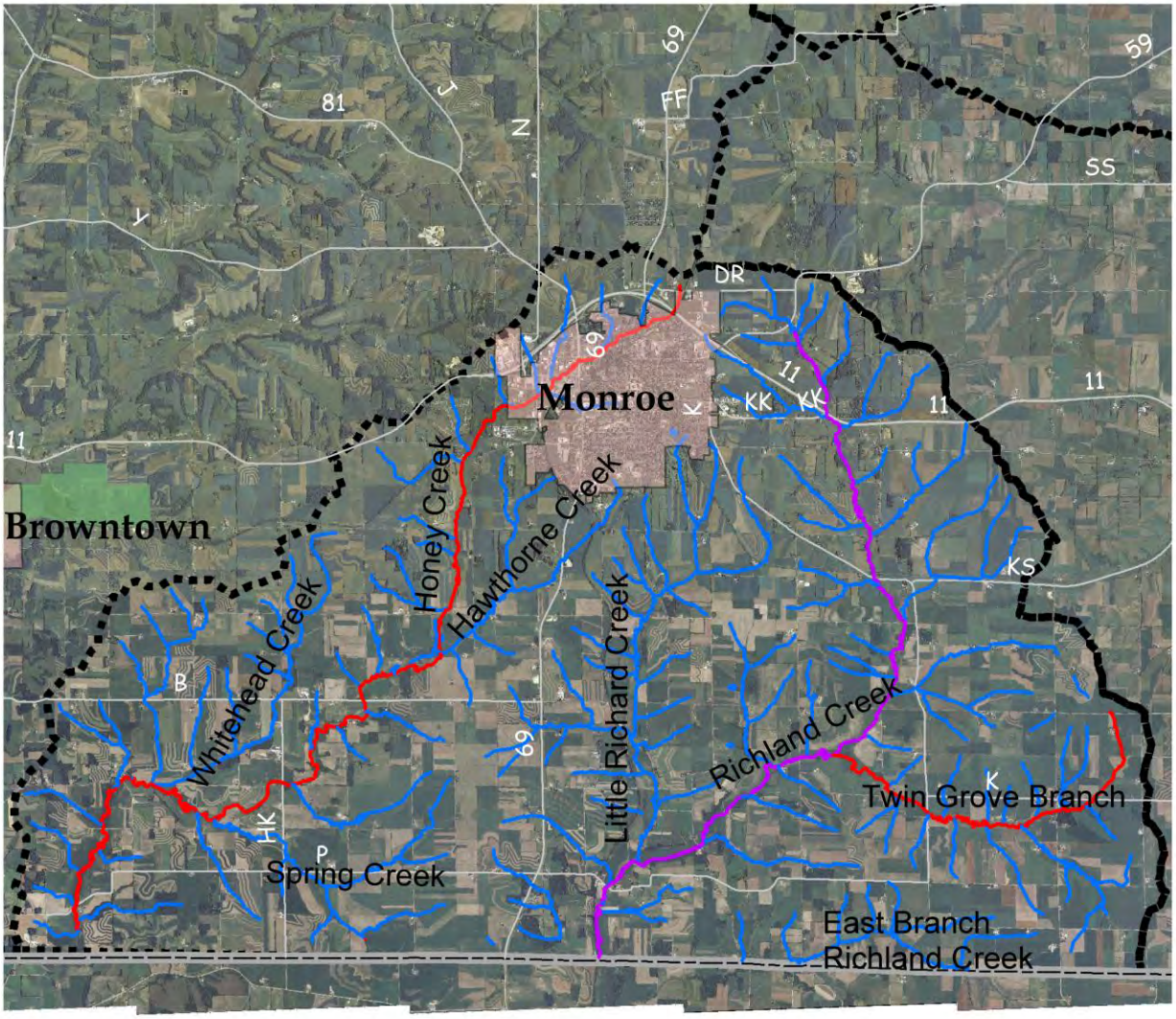
Within this chapter it should be noted that there are seventeen subwatersheds that are currently on the Wisconsin Department of Natural Resources 303(d) list of waters not currently meeting water quality standards. Beckman Lake was removed from the 303d list in 2006. Those subwatersheds and their codes are:

Honey Creek	SP01
Twin Grove Branch	SP01
Argus School Branch	SP02
Buckskin School Branch	SP02
Jordan Creek	SP02
Braezels Branch	SP03
Dougherty Creek	SP03
Jockey Hollow Creek	SP03
Prairie Brook	SP03
North Fork Juda Branch	SP11
OK Creek	SP11
Spring Creek	SP11
Searles Creek	SP12
Burgy Creek	SP14
Legler School Branch	SP14
Pioneer Valley Creek	SP14
Silver School Branch	SP14

Green County Portion of the Sugar- Pecatonica River Basin

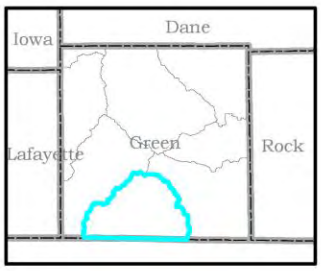


Honey & Richland Creeks Watershed (SP01)



Rivers & Streams
Impaired Waters: 303d list
Exceptional Waters
State & County Highways
Municipal Boundaries
DNR Managed Lands
Watersheds
County Boundary

0 0.5 1 2
Miles



Green County Land & Water Conservation Dept., March 2011

Honey and Richland Creeks (SP01)

The Honey and Richland Creeks Watershed in south central Green County is primarily agricultural. Basin assessment monitoring of some of the streams in the watershed indicates that agricultural non-point source pollution is a problem.
The Monroe sewage treatment facility discharges to Honey Creek and is the only municipal wastewater discharge to surface water. Four industrial facilities also discharge to surface water in the watershed.

East Branch Richland Creek
The East Branch Richland Creek is a 6 mile long stream near the Illinois border. It originates in Wisconsin, crosses the border for a short while before crossing back again and flowing 3 miles until it crosses back into Illinois and joins Richland Creek some 2.5 miles downstream. Studies conducted in the mid 1970's showed the stream to have a diversity of warm water non-game species, including the Ozark minnow, a threatened species (Fago, 1982). In 2005 a survey was conducted near Five Corners Road to see if the population of Ozark minnows still existed. None were found, but the general assemblage of central stonerollers, southern redbelly dace, fantail darters, common shiner, white sucker and creek chub still existed. Notably missing were the hornyhead chubs and the general abundance of fish. In 2010 a fishery survey was also conducted at this site. It found a similar species assemblage as the 2005 survey.
A site at Freeport Road was also surveyed in 2010. Although the stream was generally narrow and deep with good hard substrate, only a handful of specimens of brook stickleback and white sucker were found, along with 1 black bullhead. Biologists immediately noted the large amount of water cress and suspected that high spring flow might be contributing to low water temperatures of the stream and thus reducing species diversity. Temperature monitoring devices were placed in the stream at the beginning of July. From July through September, the maximum water temperature exceeded 20^{o}C only once and generally stayed below 17^{o}C. The average daily mean temperature was 13.7^{o}C. Water quality biologists and fisheries management should work with the Green County Land and Water Conservation Department to determine if land use, habitat, and water quality are sufficient to explore the possibility of introducing brook trout to this section of stream.
The diversity and number of fish has decreased since the 1970's. Because the habitat and status of the riparian corridor is not explained in the earlier survey, it is difficult to ascertain whether the species assemblage has changed due to degrading habitat conditions, or whether higher groundwater flows experienced over the last decade have contributed to lower water temperatures, thus limiting the species assemblage to some extent.

Hawthorne Creek
This is a small stream that originates on the south side of the city of Monroe. It has an existing use classification as a warm water forage fishery. Habitat in the creek is impaired by stream bank degradation due to grazing (Bush, 2000). No monitoring has been conducted on the stream recently.

Honey Creek
Honey Creek rises on the west side of the city of Monroe. The wastewater treatment plant discharges to the stream. Honey Creek is classified as a warm water sport fishery and contains bass and channel catfish. Recent monitoring has shown that Honey Creek has improved its condition since the 1970's and 1980's. Urban non-point sources of pollution, including increased runoff from urban impervious surfaces such as pavement, add to sedimentation problems in the creek. While the water quality and biota seem to have improved to the point where the stream is supporting its attainable use, there are still several areas that need to be addressed.

Little Richland Creek

Little Richland Creek begins just south of Monroe and flows 7 miles through farmland and pasture until it joins Richland Creek just east of Clarno. Very little data existed on the fishery assemblage of this stream prior to this survey. One survey done by Fago (1982) showed warm and cool-warm non-game fish in the stream. The species assemblage mirrors that of Richland Creek itself. The lower reaches contain a variety of non-game species as well as smallmouth bass and northern pike. As one travels upstream and the creek gets smaller, there are fewer species. The streams classification model (Lyons, 2008) shows Little Richland Creek to be a cool-warm transitional stream, and indeed this is reflected in the species assemblage. With the exception of the last station just upstream of its confluence with Richland Creek which showed very good cool-warm IBI, much of the rest of Little Richland Creek scored "fair" with the IBI. This rating appears to reflect the condition of the stream as noted by biologists. While there are many areas of the stream corridor with a good buffer, there are also some areas of pasturing and raw banks. The good gradient helps keep some areas of the creek scoured to hard bottom, but there are areas of moderate sediment deposition. The lower half of the stream could likely serve as a smallmouth bass nursery if certain BMPs could help limit the amount of sediment reaching the stream. Overall, Little Richland Creek is a stream with a diversity of non-game fish in fair condition, with potential to be a better resource if nonpoint source pollution can be mitigated.

Richland Creek

Richland Creek is a 14 mile long stream that originates east of Monroe and flows south into Illinois where it joins the Pecatonica River. The creek is considered in Exceptional Resource Water because it has historically been considered one of the best smallmouth bass fisheries in this area. There is very little data to put that into historical perspective. More recent surveys have shown that, while smallmouth bass are present in lower sections of the stream, they are not found in any great numbers. No young-of-the-year or yearling bass were captured in the 2010 surveys. The streams model (Lyons, 2008) indicates that Richland Creek is a cool-cold stream. However, IBIs run on the data generally show Richland Creek to be more of a cool-warm transitional water. Many sections scored "good" for the cool-warm IBI. The furthest downstream section surveyed, just upstream of Little Richland Creek, scored an "excellent" as a cool-warm transitional water as it contained a diversity of species and some gamefish. Except for the site at Blumer Road, the sites in this study were fairly well buffered.

Fisheries management has evaluated the stream to determine if it would benefit from habitat improvement. The fisheries biologist indicates that one of the limiting factors for Richland Creek's smallmouth potential is the lack of deep holes for overwintering populations of fish (Welke, Kurt, personal communication). Another is a lack of in-stream habitat. Large boulders would be beneficial and could be placed in the stream to help give the smallmouth bass some preferential cover. Another limiting factor is that smallmouth bass need dry conditions and low flows during the early summer period coinciding with the period of egg maturation (USGS, 1993). Unfortunately, high precipitation and runoff events over the past several years have not been conducive to smallmouth bass reproduction.

Richland Creek, like Little Richland Creek appears to be in fair to good condition based on the IBI scores. With the exception of a few sites, the stream is fairly well buffered. There are some areas of raw banks and streambank erosion, but the bedload of sediment and runoff from agricultural fields is probably a larger issue. As is the case with many streams in the region, Richland Creek would benefit by targeting lands of highest runoff potential with appropriate BMPs.

Spring Creek
Originating near the Illinois-Wisconsin border, this stream flows northwest for 4 miles where it joins Honey Creek. The creek supports a warmwater forage fishery. The stream has habitat impacts due to agricultural non-point source pollution and hydrologic modification.

Thunder Branch
This small, non-navigable tributary to Honey Creek serves as a discharge for stormwater from the west-central part of Monroe. Most of the creek runs in the storm sewer. There are several discharges of non-contact cooling water to the stream via storm sewer. The stream is not officially recognized on the USGS maps, nor does it have a water body identification code. It is classified as a limited forage fish stream. It has not been monitored in recent years.

Twin Grove Branch
This six mile long stream is on the state's list of impaired waters due to habitat degradation caused by sedimentation. Between Rahberger Road and CTH P, the landscape is mainly row crops, with a buffer of grasses, forbs, and shrubs. Upstream of CTH P, the land is pastured, but overall in pretty good shape with lots of sedges making up the riparian corridor. As one approaches the town of Twin Grove, there is a corridor of trees which leads to higher bank erosion. Upstream of Twin Grove Road, the stream flows through a heavily wooded area. The stream is wide and shallow, with much of the bottom covered in silt and clay. A survey conducted upstream of this road showed no fish. However, this heavily wooded corridor is the exception for the riparian corridor on this stream.
Surveys on this stream conducted in 2005 and 2010 showed the stream to contain 10-12 non-game species and dominated by white suckers, creek chubs, and common shiners. Sedimentation is moderate to heavy, especially in the lower sections of the stream with less gradient. The coolwater IBI was 50 or "fair" for both the cool-cold and cool-warm IBI. Assuming this IBI is more indicative of stream conditions as a whole (as compared to the site at Twin Grove Road) it would appear this indicates the stream is closer to maintaining its attainable use than an impaired water might be. However, biologist's qualitative assessment of habitat conditions still suggest there is a high bedload of sediment and that these conditions in the stream may not have improved to the point where it should be taken off the impaired waters list.

Whitehead Creek
Whitehead Creek is a small stream that joins Honey Creek. The stream is managed as a warm water forage fishery but has not been monitored in the last 10 years. It continues to be impaired by agricultural non-point source pollution and ditching.

RECOMMENDATIONS

- The DNR will continue to work with the City of Monroe to make sure specific elements of the storm water plan are being implemented**.**

- The DNR and LWCD will identify areas in Honey Creek and its tributaries which are not meeting the NR151 standards and prohibitions. The LWCD will approach landowners with alternatives such as rotational grazing, creation of buffers and clean water management, and ensure that farms are in compliance with the standards.

- The DNR should conduct baseline monitoring on Twin Grove Branch to determine its status as a 303d water. An assessment should be made to determine what action could help improve the stream.

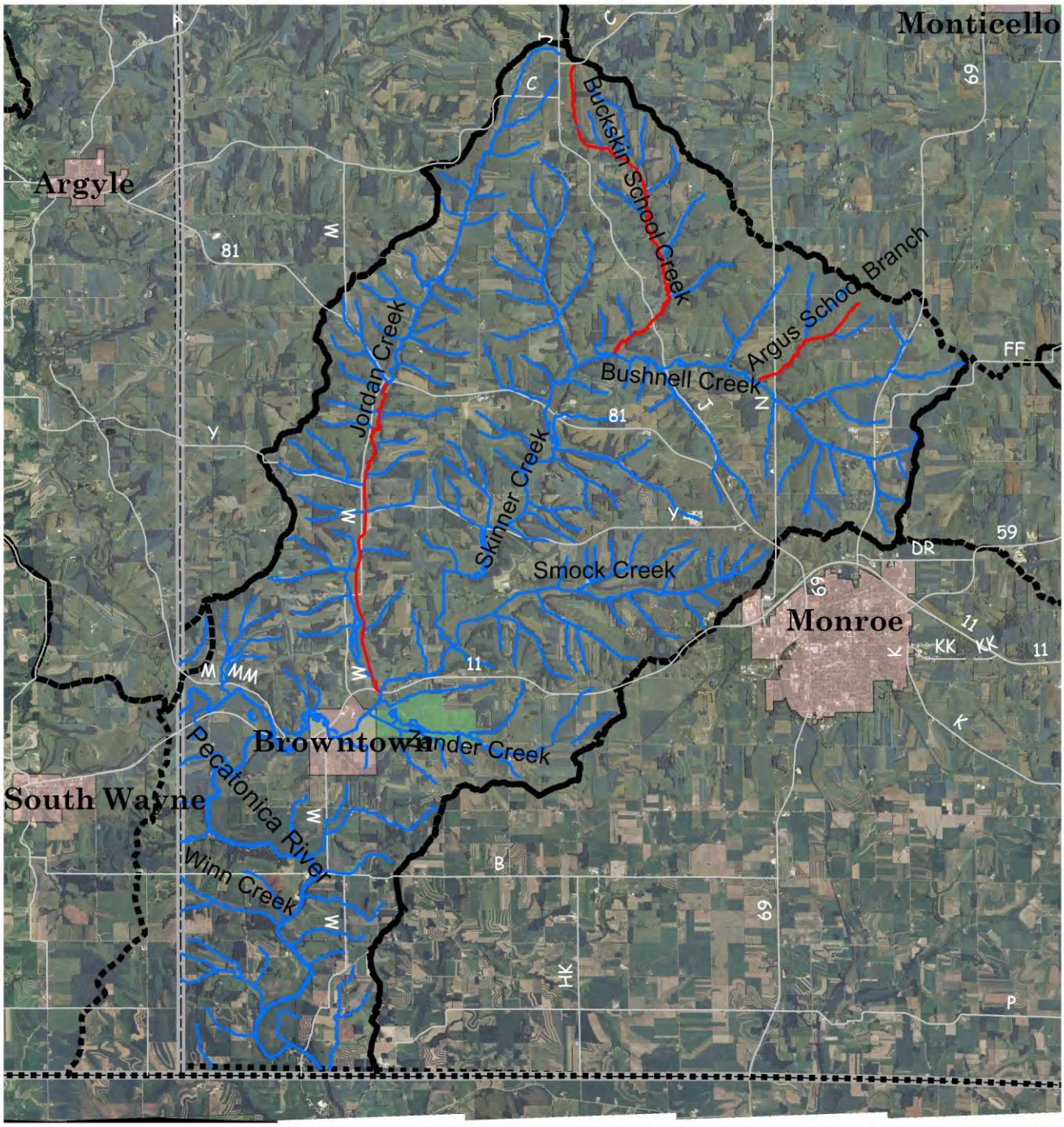
- Richland Creek should be considered a high priority candidate for Targeted Runoff Management grant or other non-point source pollution reduction project.

- The DNR should conduct baseline monitoring on Richland Creek

- Condition monitoring should be conducted on Thunder Branch to determine the impact on the creek from the point source discharge.

- The DNR should monitor the East Branch Richland Creek to track the status of state endangered and threatened species and state species of concern.

Jordan & Skinner Creeks Watershed (SP02)



Green County Land & Water Conservation Dept., May 2011

Jordan and Skinner Creeks (SP02)

The Jordan and Skinner Creeks Watershed is located in southwest Green County. Agriculture is the dominant land use in the Jordan and Skinner Creeks Watershed. The only surface water permitted point source discharger is the community of Browntown. Little is known about water quality or in-stream habitat in the watershed, though it is assumed polluted runoff affects water quality and in-stream habitat. The major site of publicly owned land in the watershed is the Browntown-Cadiz Springs State Recreation Area.

Argus School Branch
Argus School Branch is a cold water stream that flows southwesterly through the driftless area to Bushnell Creek. While it is classified as supporting warm water sport fish, the lower portion of the creek can likely support a Class II trout fishery. Brown trout are currently stocked in the lower portion of the stream. Grazing and bank degradation is a problem leading to higher temperatures in the stream and habitat destruction. Some smaller farms are going out of business, which inadvertently may help to improve the quality of the stream (Bush, pers. comm).

Buckskin School Creek
Originating in a farm pond, this creek flows southward and joins Bushnell Creek to form Skinner Creek. The creek currently supports warm water forage fish but has the potential to be a Class II trout stream. It is degraded by agricultural non-point source pollution and stream bank erosion.

Bushnell Creek
This moderate sized trout stream originates from a series of spring fed tributaries north of Monroe and flows westward joining Buskskin School Creek to form Skinner Creek. While the lower 1.2 miles are managed as a warmwater sport fishery, the upper five miles are classified as trout waters. Bushnell Creek is impacted by bank erosion and some riprapping has been done on severely eroding sections.

Jordon Creek
This warm water creek is classified as a default warm water sport fishery stream. During wet years, it receives an influx of game species from the Pecatonica River. However, due to severe agricultural non-point source pollution, the stream mainly contains limited amounts of non-game species. The stream was extensively monitoring in 2006 through 2008. The study showed that while habitat is certainly a limiting factor in Jordan Creek, especially in the lower half of the stream, one question that remains is whether the temperature is a limiting factor for certain species of fish. There are a number of springs that feed the stream. The tile lines draining the hydric soils add cold water and nutrients to the system and may present an issue for some species that prefer warmer water such as common shiners and hornyhead chubs or less tolerant species which do not tolerate nutrient loads. The low diversity of species and the domination by certain eurythermal species which can tolerate cooler water would certainly suggest this.
It is unknown whether the stream could ever sustain a cool/coldwater fishery. There is little historic data on the stream and none that would suggest cool/coldwater indicator species lived there at one time. Certainly there are other resources in the area that contain cool/coldwater indicator species. Surveys conducted on Skinner Creek have shown the presence mottled sculpin and an occasional brown trout. Lyons (2008) model indicates Jordan Creek has the potential to be a cool/cold transitional stream, but the model is considerably less accurate in the driftless area of the state (Lyons, personal communication). There is no doubt that the stream has been significantly altered by agriculture and hydrologic modification. The section from STH 81 downstream to the confluence with Skinner Creek was added to the state's 303(d) list in 2010 as

the habitat has been negatively influenced and the stream could certainly be considered impaired. The reality, however, is that the chances of making any meaningful, significant changes to the land use (i.e. buffers and wetland restoration) or channel morphology (i.e. re-establishing stream meanders and shaping/sloping banks) in the foreseeable future are slim.

Pecatonica River
A twelve mile section of the river runs through this watershed. Skinner Creek and several unnamed tributaries join the Pecatonica in this area. The river serves as a sanctuary for sport fish during times of low water.

Skinner Creek
Originating at the confluence of Bushnell and Buckskin School Creeks, this large stream flows southwesterly and joins the Pecatonica near Browntown. The creek has an abundance of forage fish, but also contains sport fish. Fish such as smallmouth bass, northern pike and channel catfish are more prevalent in periods of high water. The stream once ran through an extensive area of wetlands, but now only 120 acres of wetland remains.

Smock Creek
Smock Creek is a warm water stream that flow west and joins Skinner Creek northeast of Browntown. The creek used to be stocked with trout, but now supports mainly a forage fishery with a few smallmouth bass present.

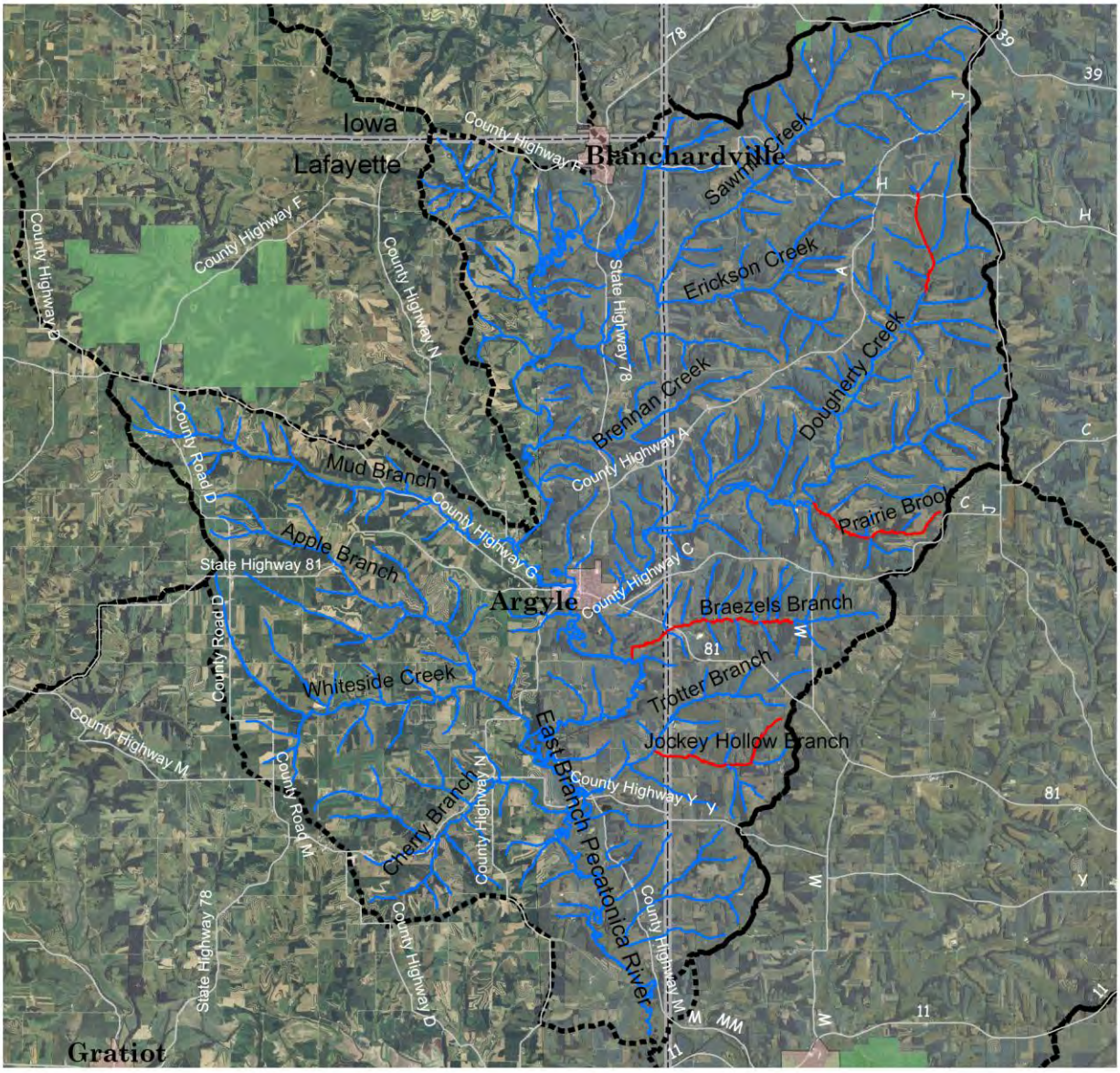
Winn Creek
This small creek originates from a spring pond in Lafayette County and flows east where it enters the Pecatonica River in Green County. Winn Creek is a warm water forage fishery.

Zanders Creek
This small stream flows westward and has been diverted to provide water for Zanders Lake and Beckman Lake. After leaving Beckman Lake, it flows west and enters Skinner Creek. A large spring flows into the stream above Zanders Lake, providing the necessary water temperatures to support trout. The water temperature along with the habitat work done, enhance the stream's existing use as a Class II trout stream.

RECOMMENDATIONS

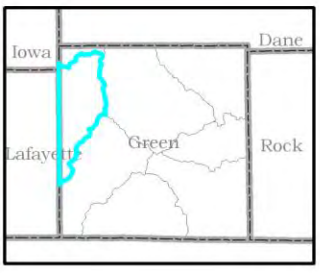
Collect information on named streams so that the watershed can be ranked for impact from non-point source pollution.

Lower East Branch Pecatonica Watershed (SP03)



Rivers & Streams
Impaired Waters: 303d list
Exceptional Waters
State & County Highways
Municipal Boundaries
DNR Managed Lands
Watersheds
County Boundary

0 1.25 2.5 5 Miles



Green County Land & Water Conservation Dept., March 2011

Lower East Branch Pecatonica River (SP03)

The Lower East Branch Pecatonica River Watershed, in the western part of Green County and northeastern Lafayette County was a priority watershed project under the Wisconsin Nonpoint Source Water Pollution Abatement Program. A number of smaller trout streams in the watershed (WDNR, 1980) are affected by polluted runoff. A detailed description of water quality conditions in the watershed prior to the beginning of the priority watershed project can be found in *Lower East Branch Pecatonica Priority Watershed Project: Water Resources Appraisal Report* (Marshall, 1991). The objectives of the priority watershed project were to improve wildlife habitat, increase diversity of forage species, protect and restore wetlands and to reduce bank erosion. In 2009, a follow-up report for the completed watershed project, ("An Assessment of the Water Quality in the Lower East Branch of the Pecatonica Watershed") was published. The following narratives for Green County streams in the LEBP watershed come from the latest assessment.

Two permitted facilities discharge to surface water in the watershed, the villages of Argyle and Blanchardville.

Braezels Branch

This stream originates in Green County and flows westward primarily through pastureland. It enters Lafayette County where it converges with the East Branch Pecatonica River. The warm water forage stream is on the state's list of impaired waters, but has the potential to be a cool-cold water stream. A fish shocking survey conducted in 1990 showed the presence of tolerant and very tolerant warm water forage fish species. Macroinvertebrate sampling conducted that same year indicated "very good" water quality although the streambank substrate was predominantly sand and streambank erosion reduced habitat (Marshall, 1991).
Sampling in 2007 generally confirmed what was reported during the 1990's. Even though the stream is stocked routinely with brown, brook and rainbow trout, there does not appear to be much carry-over from year to year. Tolerant fish dominate the assemblage though no species is present in very high numbers. This is likely due to lack of habitat rather that water quality. The stream meanders through wet meadow and agricultural land. The HBI continues to indicate low organic loading and *Gammarus pseudolimnaeus*, an indicator of high groundwater flow, dominate the macroinvertebrate assemblage. The stream may be too cool to harbor a large variety of eurythermal species with a preference for warmer water, and devoid enough of habitat needed to accommodate cool/coldwater indicators and especially top level predators. Braezels Branch should remain on the list of impaired waters. If the department continues stocking the stream, regular surveys should be conducted to determine survivability of the trout.

Dougherty Creek

Dougherty Creek is a moderate sized stream that has an existing use as a Class II trout stream for much of its length. The upper 2 miles has an existing use as a limited forage fishery and is on the state's list of impaired waters for habitat degradation and dissolved oxygen problems. While most of this short section of stream has now been put in a set-aside program, there are several barnyards at the headwaters of the stream that were identified as sources of nutrients and biochemical oxygen demand (BOD) to the stream (Marshall, 1991; WDNR, 2008). The stream flows through small patches of forest, cropland, and wetland, but also through pasture where it suffers severe bank erosion. The stream bottom above Apple Grove Road is primarily gravel. Below this area, silt and clay become more prevalent and the water is more turbid (Marshall, 1991).

While most of the stream is managed for brown trout, some rainbow trout have been stocked and show up in stream surveys. Tolerant, eurythermal forage fish species are common in the stream including white sucker and creek chub. Mottled sculpin, and intolerant species, are found in low to moderate numbers.

Goals of the priority watershed project were to improve the trout fishery, reduce organic loading and erosion, increase aquatic diversity and improve wildlife habitat. There has been some habitat improvement work done on the stream, primarily upstream from Prairie View Road. These have resulted in localized improvements in trout numbers with 2007 coldwater IBI ratings of "fair" to "good". Small sections have been fenced and certain areas of the riparian corridor have been returned to prairie – especially in the upper ½ of the stream. The lower ½ of the stream runs through row crops and grazed wet meadows. Biologists noted that the U-shaped channel offers little in the way of habitat save for depth and overhanging grasses and banks. This bigger water could offer an opportunity to attract higher numbers of larger fish if habitat could be improved.

Erickson Creek

Erickson Creek flows toward the southwest where it joins Sawmill Creek just across the Lafayette County border. The stream is a moderate sized, Class II trout stream. Macroinvertebrate sampling showed "very good" water quality, and despite some problems associated with nonpoint source pollution and channel straightening, this creek displays the best water quality in the watershed (Marshall, 1991). It has not been surveyed recently.

Jockey Hollow Branch

This very small stream originates in western Green County and flows westward where it feeds into Trotter Branch just inside the Lafayette County line. The stream is on the state's list of impaired waters because it suffers from poor habitat, low flow and channel straightening. Sampling conducting in 1985 and 1990 showed only the presence of brook stickleback (Marshall, 1991).

Surveys conducted in 2007 and 2008 at Jordan-Wiota Road and Duncan Hollow Road, respectively, continued to show a lack of fish. For the most part, the stream flows mainly through a box elder corridor. This leads to bank slumping and erosion causing the stream to become wide, shallow, and lacking in habitat. The upper portions of the stream do contain some gravel riffle areas. Macroinvertebrates, dominated by *Gammarus pseudolimnaeus*, show good water quality from an organic loading standpoint. The macroinvertebrate IBI showed very poor indications of habitat/land use in the upper sections and good in the lower section. This is not consistent with biologist's observations. Because of low flow, and possibly cool temperatures, the stream will always be limited in the number and diversity of fish it can support. However, habitat continues to be a limiting factor to this stream achieving its potential.

Prairie Brook

This small steep stream drains an unglaciated valley and serves as a tributary to Dougherty Creek. The stream is valuable because it provides a source of cold water to Dougherty Creek (Surface Water Resources of Green Co, 1980). Heavily pastured, it suffers from streambank erosion; however the steep gradient maintains a sandy bottom with small amounts of gravel and cobble. Prairie Brook is a Class III trout stream whose potential is somewhat limited by flow. In 1998 the Prairie Brook was added to the state's list of impaired waters. The department and the Green County Land and Water Conservation Department should work with landowners to install best management practices and enforce NR151 to improve the riparian corridor of the stream. The stream was stocked with brook trout in 2005. It has not been monitored recently.

Sawmill Creek

This tributary to the East Branch of the Pecatonica River begins in the driftless area of Green County and flows southwestward into Lafayette County. Most of the stream is managed as a Class II trout fishery. In the flatter stretches, the bottom is composed primarily of silt, while the steeper sections contain mostly gravel and rubble (Surface Water Resources of Green County, 1980). Most macroinvertebrate samples taken from 1985 through 1990 indicated "very good" water quality. The stream suffers from bank erosion and low flow in the headwaters and sediment deposition, turbidity, and channel straightening in the lower reaches.

Monitoring conducted in 2004 and 2007 shows the stream to contain brown trout as well as eurythermal species. Most of the species making up this latter category are species tolerant to habitat disturbance such as creek chub and white sucker; however, there are also several darter species and simple lithophils such as common shiner and southern redbelly dace.

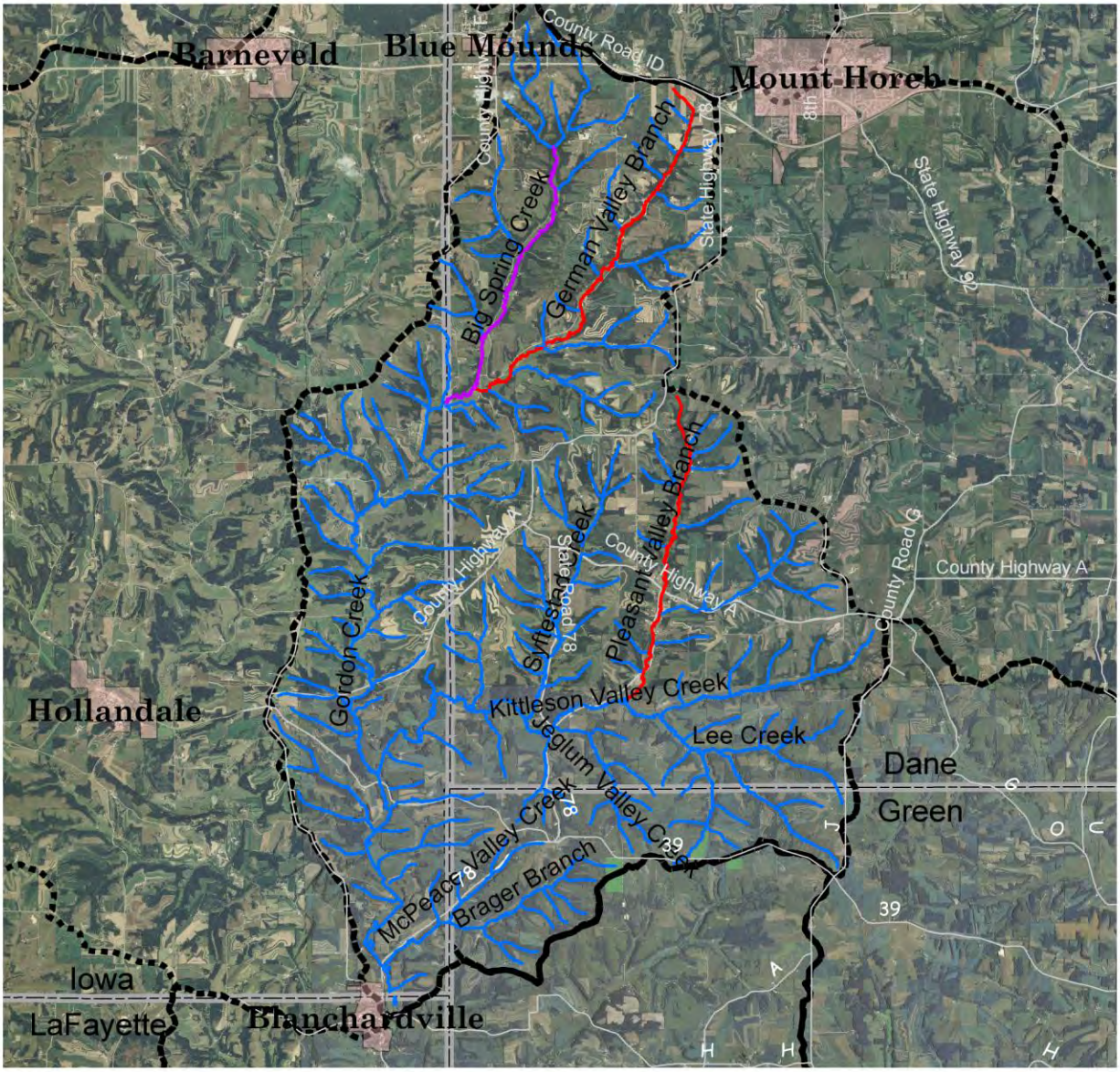
Macroinvertebrate samples continue to show "very good" water quality from an organic loading standpoint. Macroinvertebrate IBIs vary between "poor" and good". Indications are that the stream is a disturbed cool-warm transitional stream that has not changed much over the past two decades.

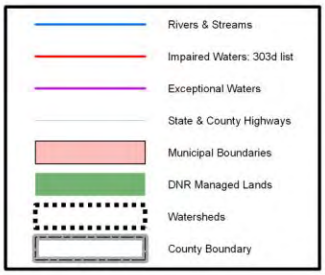
Trotter Branch

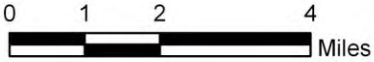
This small stream flows westward into Lafayette County and is joined by Jockey Hollow Branch before it enters the East Branch of the Pecatonica River. Although a 1980 fisheries survey reported small numbers of stonerollers, creek chubs and American Brook Lamprey, a 1990 study found only brook stickleback. It suffers from poor habitat, low flow, and channel straightening. The goal of the priority watershed project was to reduce organic loading and erosion, increase aquatic diversity, and improve wildlife habitat.

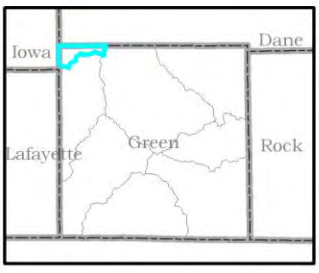
Sampling conducted in 2007 and 2008 showed very few trout and a low amount of other individuals, mostly made up of tolerant species. Like many lower areas of tributaries to the East Branch Pecatonica River, northern pike made their way up Trotter Branch in spring 2008 to spawn. Young-of-the-year pike were found at the (lower) Trotter Road crossing in 2008 whereas none were found there in 2007. Another survey conducted just downstream from Jockey Hollow Creek yielded only four brook stickleback. Macroinvertebrate HBI samples continue to indicate "very good" to "excellent" water quality. The department, in consideration of adding Trotter Branch to the list of impaired streams, should conduct further monitoring, including temperature, flow and habitat, and investigate land-use in the area to determine why the stream is lacking in fish.

Gordon Creek Watershed (SP05)









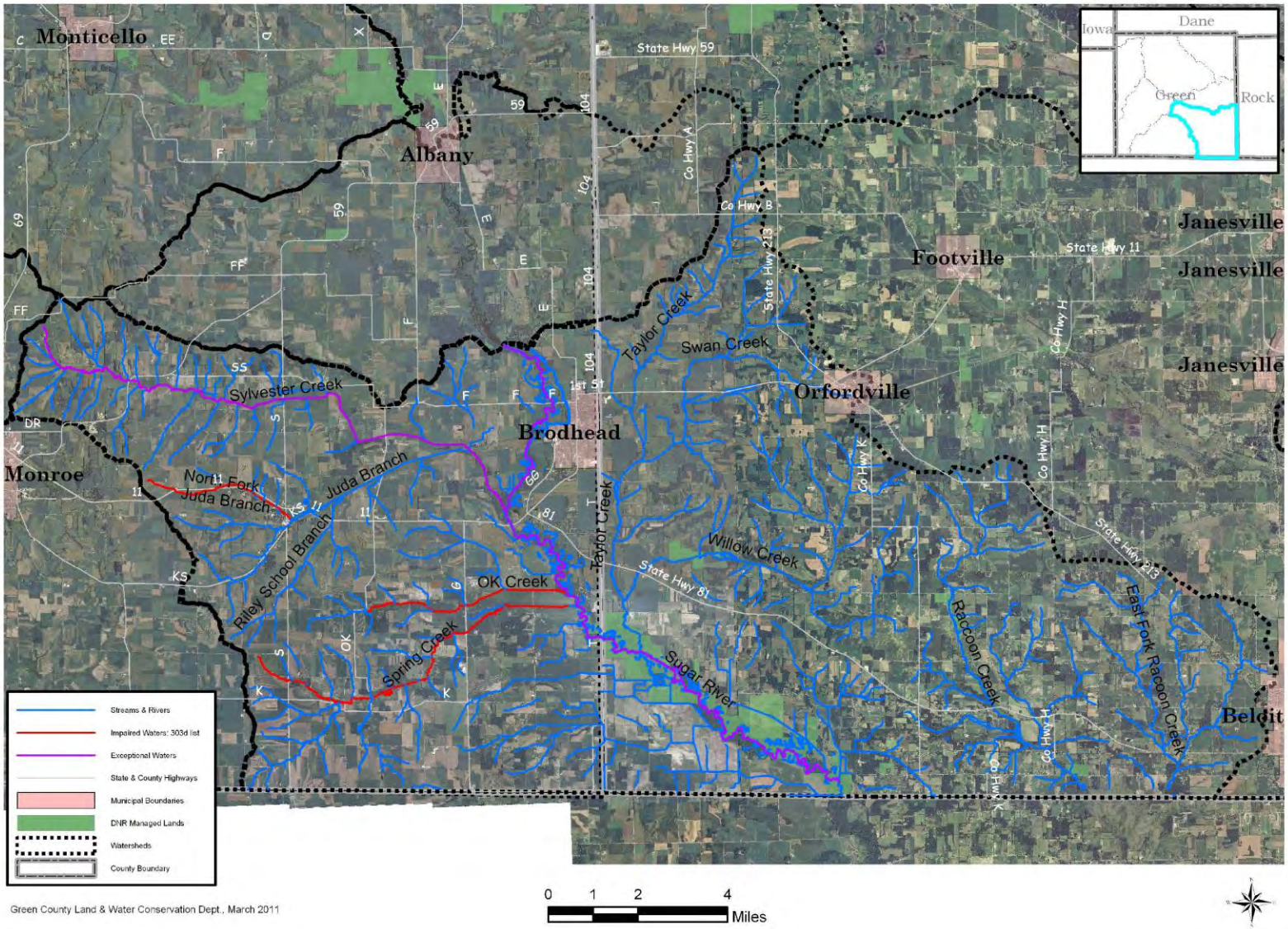
Green County Land & Water Conservation Dept., March 2011

Gordon Creek Watershed (SP05)

The Gordon Creek Watershed, in southwestern Dane, northwestern Green, and southeastern Iowa counties, is an agricultural watershed in the driftless part of the state, with no incorporated areas in it. Polluted runoff problems exist in the watershed, but the extent of the problem has not been fully evaluated.

Kittleson Valley Creek
Kittleson Valley is a tributary to Gordon Creek in southeast Iowa County. Seven miles are considered Class II trout waters while an additional two miles are Class III (DNR, 1980). Recreational use of this stream is impaired due to polluted runoff. Heavy sedimentation in the stream bottom (WDNR, 1992-93), is probably due to bank erosion and runoff from farm fields.

Lower Sugar River Watershed (SP11)



Lower Sugar River (SP11)

The Lower Sugar River Watershed in western Rock County and eastern Green County includes the reach of the Sugar River from the dam at Albany downstream to the Wisconsin-Illinois state line. The watershed is intensively agricultural. Three municipal wastewater treatment facilities discharge to surface waters in the watershed: Albany, Brodhead, and Orfordville. The Juda Wastewater Treatment facility discharges to groundwater. Two industrial facilities discharge to surface water: Grande and Protient. Polluted runoff is the primary cause of water quality and in-stream habitat problems in the watershed, though one of the wastewater treatment facilities has presented problems.

Large, important floodplain wetland complexes exist along the Sugar River. These wetland complexes have a high value for wildlife and water quality. Many of these wetlands are encompassed in the Avon Bottoms State Wildlife Area and Avon Bottoms State Natural Area in Rock County. In 2009, landowners had the chance to apply to enroll their land in the Emergency Watershed Protection Program. Of the 44 applications for the program, nine were approved. NRCS holds a perpetual easement on these 717 acres enrolled in the program. Restoration work was done to create better habitat for all sorts of animals.

Green Drainage System

Constructed in 1900 as a deep flow furrow, this stream has since eroded and is now contained within steep banks. The system originated in a low-lying cropland area in Southeast Green County but flows for most of its length through the Sugar River bottomlands of Rock County where it joins the Sugar River (Surface Waters of Green Co). It feeds into the Avon Drainage District in Rock County. The system holds populations of forage fish and gamefish, the latter are likely migrants from the Sugar River. The system has not been monitored in recent years.

Juda Branch

This moderate sized, low gradient stream originates west of Juda, and flows eastward where it joins Sylvester Creek. From Juda to where it joins Sylvester Creek, the Juda Branch is part of a legal drainage district. The drainage district has been working on removing trees along the banks. Much of Juda Branch is channelized and deeply entrenched. It contains non-game species tolerant to disturbed habitat as well as other minnow species. The redfin shiner, a state threatened species, was recently found in the stream. Brown trout have also been found upstream from Juda.

North Fork Juda Branch

This small tributary to the Juda Branch is listed on the state's impaired (303d) waters list because of habitat disturbance caused by agricultural non-point source pollution and discharge from Grande and Protient, whey factories. It currently supports a limited forage fishery. The stream has not been monitored recently.

Oakley Branch

This small stream flows northward and joins with Spring Creek. Because it drains almost a totally agricultural watershed, it suffers habitat impairment and turbidity from agricultural non-point source pollution. The stream has not been monitored recently.

OK Creek

Much of this stream has been ditched to drain a large wetland area west of the Sugar River. The water is turbid even in times of low flow (Amrhein, personal obs). It has not been monitored recently.

Riley School Branch
This warm water forage fishery is similar to other streams in the area. It meanders through cropland and pasture. Habitat is impaired by agricultural nonpoint source pollution. It has not been monitored recently.

Spring Creek
Spring Creek is an impaired 303(d) water. The stream flows through highly agricultural land and suffers from streambank erosion. Much of its length has been ditched for cropland drainage. The stream is entrenched with highly eroding banks. The good gradient upstream of CTH G keeps the bottom scoured. Certain areas contain a variety of non-game fish species and may even have the potential to support limited numbers of game species. Bank stabilization would help reduce sediment loads

Sugar River
An 18.4 mile stretch of the Sugar River runs through this watershed from below the dam at Decatur Lake to the Illinois-Wisconsin border. The lower one-half of the river, mainly in Rock County, runs through the lowlands and wetlands of the Avon Bottoms State Wildlife Area. The portion of the Sugar River in Green County is listed as an Exceptional Resource Water (ERW). Surveys conducted from 1992 to 1994 showed an excellent warm water fishery consisting of smallmouth bass, channel catfish, and northern pike in addition to the numerous forage fish species.

Sylvester Creek
This 14-mile long stream flows eastward through a broad, flat valley and enters the Sugar River south of Brodhead. The lower 8.4 miles of the stream supports a warm water fishery, including some smallmouth bass. The next 4 miles supports a coldwater fishery and is classified as an Exceptional Resource Water (ERW). Trout are limited in numbers and primarily augmented through stocking. Part of the watershed is in a legal drainage district. Enrollment in CRP has improved the water quality of the stream, but manure management continues to be an issue. Habitat is still impacted by streambank erosion and channelization.

RECOMMENDATIONS

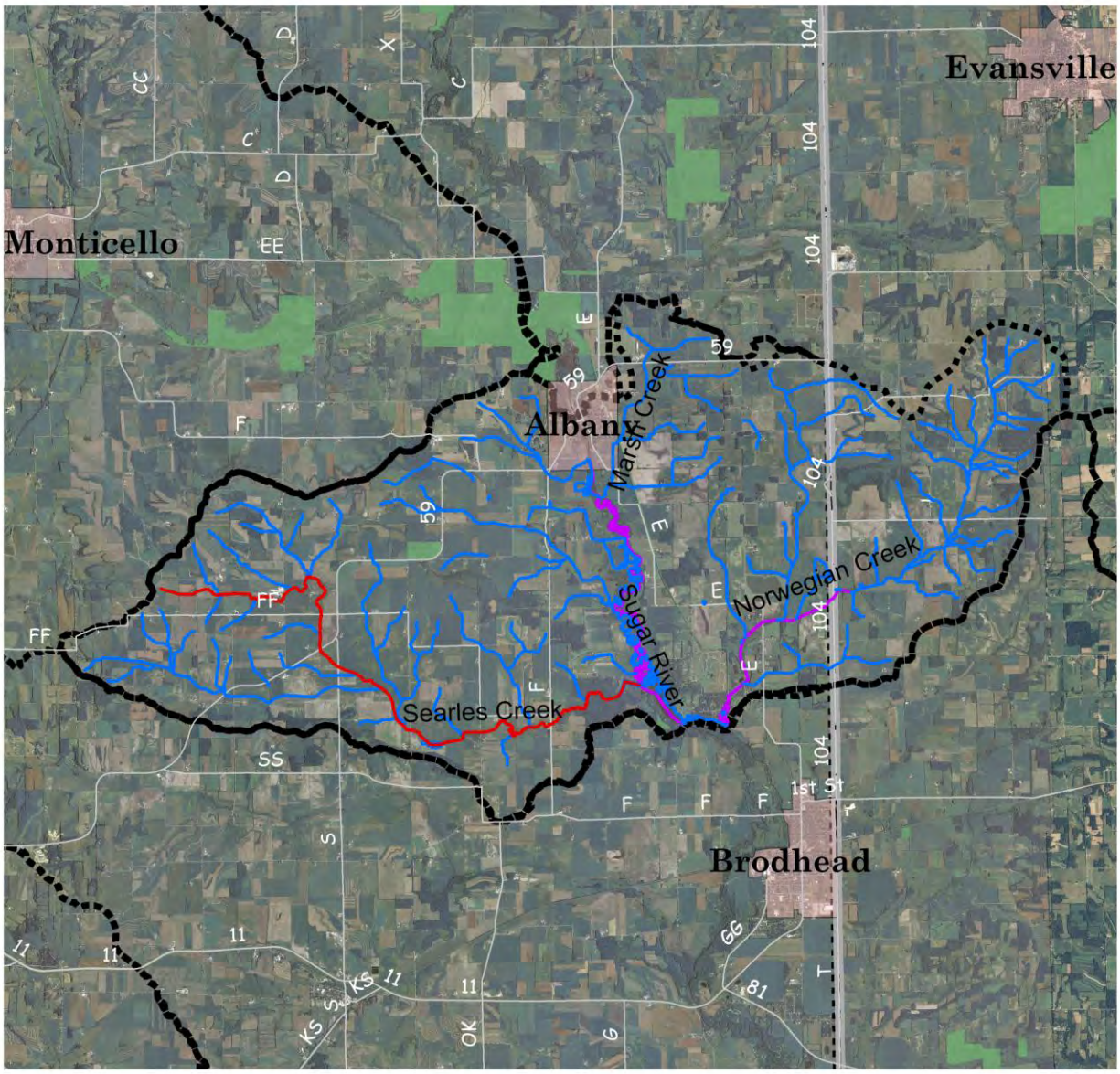
The DNR should conduct baseline monitoring on the following streams in the watershed to determine their status: Juda Branch, North Fork Juda Branch, Oakley Branch, OK Creek, Riley School Branch, Spring Creek and Sylvester Creek.

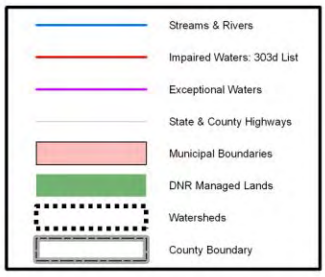
The DNR should conduct damage assessment monitoring on North Fork Juda Branch to determine the stream's response to the correction of permit violations and unpermitted discharges.

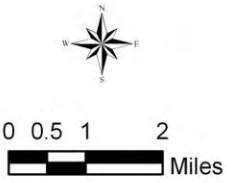
The DNR should investigate whether it's desirable and feasible to abandon the millrace on the Sugar River to return to a stream environment.

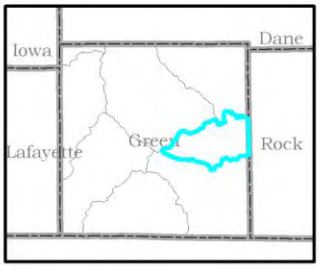
Survey Spring Creek to determine if any actions could be completed to improve the quality of the water.

Lower Middle Sugar River Watershed (SP12)









Green County Land & Water Conservation Dept., March 2011

Lower Middle Sugar River (SP12)

The Lower Middle Sugar River Watershed is located in eastern Green County and a very small portion of Rock County. Agriculture is the predominant land use. Two permitted wastewater treatment facilities discharge to surface water in the watershed; the Village of Albany and the City of Brodhead. A large wetland complex exists adjacent to the Sugar River in this watershed. Other large areas of wetlands have been drained and put into cultivation. The Sugar River in this watershed is considered to be exceptional resource waters (ERW) under the state's antidegradation rules.

Marsh Creek
Originating from a spring, this small stream flows southwest and joins the Sugar River below Albany. The water is clear as the stream meanders between wooded shorelines (Water Resources of Green Co; Amrhein pers. obs.) A stream improvement project completed some fencing and bank repair in an effort to increase the streams trout potential was completed sometime prior to 1980 (Surface waters of Green Co). Today, an old sign indicating the area of improvement remains on the downstream side of County HWY E (Amrhein, pers. obs). The lower 2 miles of this 3 mile stream are classified as a Class III trout fishery, but since monitoring has not been conducted recently and it is no longer stocked with trout it is not known if a trout fishery still exists (Bush, pers comm.). There is a small residential development near the creek, but it is not impacting the creek.

Norwegian Creek
With its headwaters in western Rock County, this stream flows into Green County and enters the Mill Race Arm of the Sugar River at Decatur Lake. Part of the stream and its tributaries are in a legal drainage district (Broughton). The stream holds some sport fish near its mouth mainly due to the influence of Decatur Lake. It is also home to forage fish, including the least darter, a species on the state's special concern list. The stream is classified as an Exceptional Resource Water (ERW). A narrow wetland buffer exists along the streams lower reaches. Landowners in the drainage district are removing trees along the banks. It has not been monitored in recent years.

Searles Creek
This 9-mile, low gradient stream flows eastward and joins the Sugar River at the north end of Decatur Lake. The creek's watershed is a broad, flat-bottomed basin which is heavily tilled for crops. A great deal of the stream has been straightened because of ditching. Some areas are buffered by trees and vegetation along the shore, while other areas are grazed right down to the shoreline (Amrhein, pers. obs). A wetland area just upstream from the confluence with Decatur Lake provides habitat for wildlife. The existing use as a warm water sport fishery is mainly due to fish species migrating upstream from Decatur Lake seeking better habitat than that which can be found in the lake itself (Bush, pers comm). Searles Creek is listed on the state's list of impaired (303d) waters because of habitat degradation caused by nonpoint source pollution. It has not been monitored in recent years.

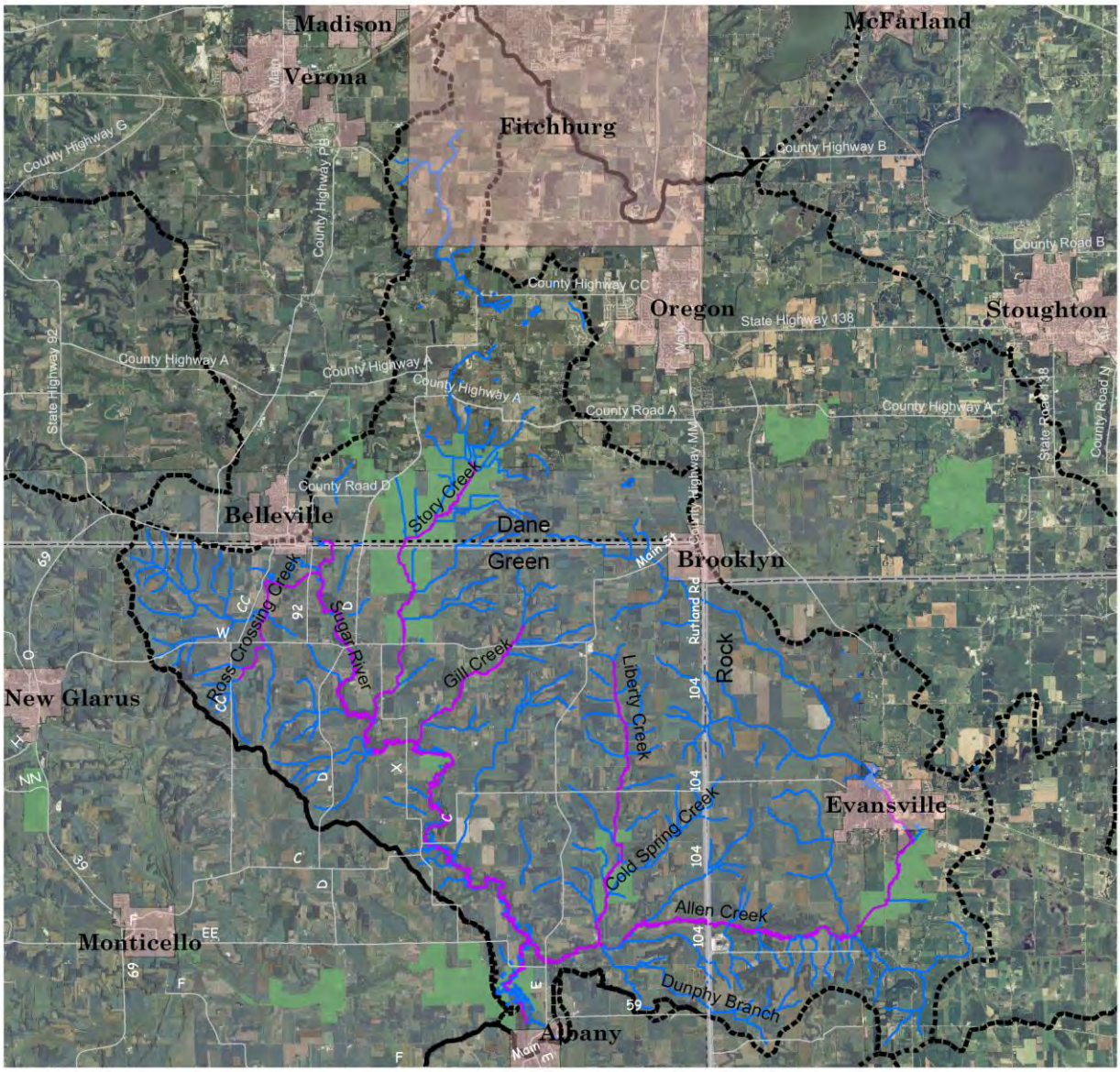
Sugar River
A 9.8 mile stretch of the Sugar River runs through this watershed. As in other watershed, the Sugar River is classified as an Exceptional Resource Water. It contains a diversity of warm water sport and forage species including several species on the state's endangered list or watch list. Additionally, one state threatened and one state watch species of mussel are known to reside in this reach of stream.

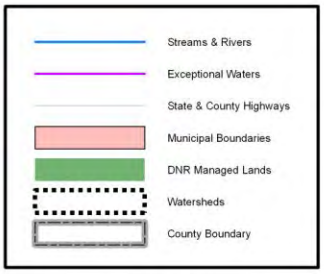
RECOMMENDATIONS

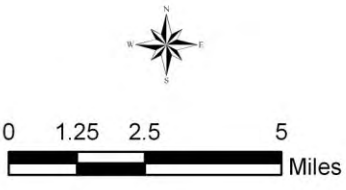
The DNR should conduct baseline monitoring on Searles Creek and Norwegian Creek to determine the status of the streams

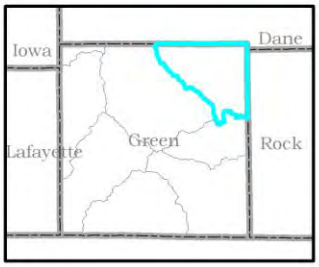
Survey Marsh Creek to determine its potential as a cold water fishery.

Allen Creek and Middle Sugar River Watershed (SP13)









Green County Land & Water Conservation Dept., March 2011

Allen Creek and Middle Sugar River (SP13)

The Allen Creek and Middle Sugar River Watershed are in northeast Green County, northwest Rock County and south central Dane County. The dominant land use in the watershed is agriculture, though some low intensity urban development exists in the upper reaches of the watershed. Municipal wastewater treatment plant discharges to surface water in the watershed come from Belleville, Brooklyn and Evansville.

Allen Creek
Allen Creek rises in southern Dane County, flows through northwest Rock County and northeast Green County before emptying into the Sugar River. About 4.5 miles of the stream above Lake Leota are classified Class II and Class III trout waters. Allen Creek below Evansville was recently added to the state's antidegradation list (NR 102) as an exceptional resource water (ERW), affording it a greater level of protection. The stream below Evansville has a very good, diverse warm water sport fishery.

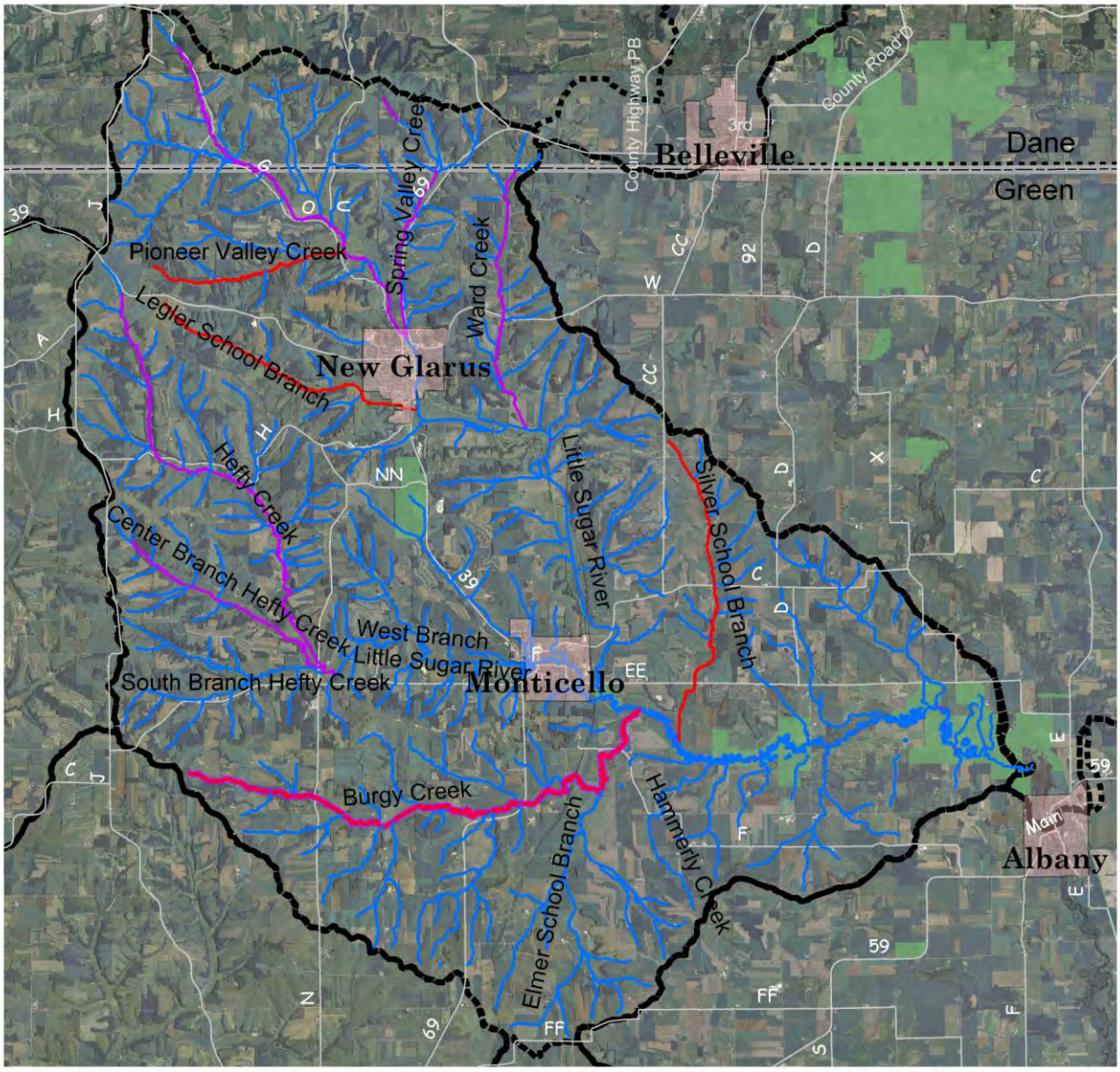
Gill Creek
Gill Creek has historically been thought of as a warm water forage stream with a potential to support a cold water fishery. Indeed, in surveys conducted over the past 10 years, brook trout as well as other cold water indicator species like brown trout, mottled sculpin and brook lamprey have been found in the stream. It is currently listed as an Exceptional Resource Water (ERW) because wild brook trout have been found in the stream. The department and the county should look into employing best management practices in the watershed to help enhance the stream.

Liberty Creek
Liberty Creek is classified as a Class II (1 mile) and Class III (3 miles) trout stream for four miles of its length. About 2.5 to 3 miles are within the Liberty Creek State Wildlife Area. A high quality wetland complex exists adjacent to the creek. Liberty Creek is considered an Exceptional Resource water (ERW). The least darter, a Wisconsin species of special concern, has been reported in this stream. It continues to support low numbers of brown trout, but good numbers of mottled sculpin, a coldwater indicator species. Some streambank work has been done downstream of Elmer Road.

Ross Crossing Creek
Ross Crossing Creek is a warm water forage fishery with the potential to become a cold water sport fishery. The Redfin Shiner, a fish on the Wisconsin watch list, has been found here. The stream was recently added to the state's antidegradation (NR 102) as an exceptional resource water (ERW), affording it a greater level of protection.

Albany Lake (Lake Winnetka)
This lake is an impoundment of the Sugar River at Albany. It has poor water quality, similar to other impoundments in the driftless area. This 102 acre lake has a drainage area of about 465 square miles. Sedimentation and turbidity impair uses of the lake. A best-case scenario for the Sugar River at Albany is that the dam be operated as "run of the river" dam, allowing much of the existing millpond to become a riverine wetland complex. The Albany State Wildlife Area borders the northwest corner of the lake.

Little Sugar River Watershed (SP14)



Streams & Rivers
Impaired Waters: 303d list
Exceptional Waters
Exceptional & Impaired Waters
State & County Highways
Municipal Boundaries
DNR Managed Lands
Watersheds
County Boundary

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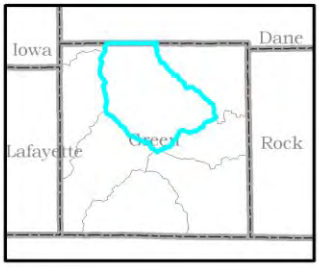
Miles



Green County Land & Water Conservation Dept., March 2011

Little Sugar River (SP 14)

The Little Sugar River Watershed lays in north central Green County and a very small portion of southern Dane County. Agricultural land uses dominate, especially dairying, cash crops, and feeder operations. Two municipal wastewater treatment plants discharge to surface water in the watershed: New Glarus and Monticello. New Glarus is the beginning of the Sugar River State bicycle trail which parallels the Little Sugar River and Sugar River from New Glarus to Brodhead.

Burgy Creek
Burgy Creek is a tributary to the Little Sugar River. It contains a diverse fishery, including some coldwater indicator species such as mottled sculpin and brook trout. A redside dace, another coolwater indicator, was found in 2002, the first report of this species. These species indicate the creek's potential to be a trout stream. Stream channel ditching, runoff from farmfields, extensive row cropping, and streambank grazing have degraded habitat in the stream. As such, it is on the state's impaired waters list. Overall, it ranks high on the state's nonpoint source priority list. The department and county should work to improve land use and habitat conditions of this stream.

Elmer School Branch
This small sluggish tributary to Burgy Branch consists of a warm water forage fishery dominated by white suckers and creek chubs (Surface Waters of Green Co). Sampling in 2002 found and abundance of mottled sculpin as well. Overall, the stream has limited habitat and is moderately impacted by sedimentation. Additional surveys further upstream should assess land use and potential for the stream.

Hammerly Creek
The lower one-third of this 3 mile stream is considered Class III trout water. The creek was once a natural brook trout stream with well defined banks, deep pools and abundant riffles, but habitat deterioration has been so severe that it currently only supports a trout fishery through stocking of brown trout. The principal water source is a spring which has been excavated and dammed to form a pond for a private fish hatchery. During the summer, water from the pond is warmed significantly prior to entering the stream (Surface Waters of Green Co.). A fisheries survey conducted in 2002 at the Sugar River Trail Bridge found forage species including sculpin, stickleback, mudminnows, and darters. Heavy siltation was noted in this area whereas upstream areas appear to have better gradient, flow and overall habitat.

Hefty Creek
Also known as the "North Branch", this stream flows southeast and merges with South Branch Hefty Creek to form the Little Sugar River West Branch. The three branches of Hefty Creek run through rolling hills with small ridges. The ridges are mostly wooded with agriculture in the gently sloping valleys (Amrhein, pers. obs). The north branch is a Class III trout fishery with a potential to be a Class II. It is also classified as an ERW for most of its length and the redside dace has been found in these waters. The upper portions are mostly gravel, rubble, and hardpan while near the mouth the bottom is more muck and the stream more turbid (Surface Waters of Green Co., Amrhein pers. obs). The state recently purchased easements in the headwaters area of the stream. Fish and habitat evaluations were conducted in 2002. DNR and Green County LWCD have been working with landowners on trout stream improvement projects over the past several years.

Hefty Creek (Center Branch)
The Center Branch is similar to the North Branch. It is a Class III trout stream in the lower portion with potential to be a Class II stream. The lower one mile is also an ERW. The stream has not been monitored recently.

Hefty Creek (South Branch)
This small creek is a Class III trout stream but low flow and lack of instream cover limit the stream's trout potential (Surface Waters of Green Co.). The stream fauna mainly consists of cold water forage species (Bush, pers comm). The stream has not been monitored recently.

Hustad Valley Creek
This small, high gradient stream flows northeast into Dane County as part of the Little Sugar River headwaters. The fishery is limited to forage. The Surface Waters of Green Co. (1985) narrative reports substantial bank erosion during periods of heavy runoff. The high gradient maintains the gravel and rubble bottom, but the water is turbid. The stream has not been monitored recently.

Krieg Valley Creek
Krieg Valley Creek is a small high gradient stream that flows into Pioneer Valley Creek northwest of New Glarus. The fishery is restricted to forage species. It has not been monitored recently.

Legler School Branch
Legler School Branch is a spring fed stream in the Little Sugar Watershed. Legler School Branch is listed on the state's list of impaired waters due to degraded habitat caused by excessive sedimentation caused by nonpoint source pollution. A 2004 DNR survey of the lower reach rated the habitat as "poor" with a high level of soft sediment. The stream current supports a limited forage fishery with the potential to support a coldwater (trout) fishery. The stream is a tributary to the Little Sugar River, an ERW and Class II trout fishery. The Little Sugar River Watershed has a medium-high potential for reduction of sediment (and phosphorus) delivery to the stream if riparian buffers were implemented according to the WBI report. From visual observations of the watershed, there is a large amount of sediment from eroding stream banks. Other sources of nutrients and sediment from upland sources were also observed in the watershed.
Legler School Branch has a Total Maximum Daily Load (TMDL) written for it to guide reduction of the amount of sediment transport to the stream. There are a handful of farms in the watershed that will be evaluated for compliance with NR151. The TMDL describes the soil loss goal for achieving water quality goals. The Green County LWCD has applied for a TRM grant for funding in 2012. The county will work with landowners in the watershed to employ BMPs to help meet these goals. Because stream bank erosion is also a major contributor of sediment to this system, another focus of the project will be to clear most of the 10 miles of box elder and willow lined stream, slope and seed the banks in grass to stabilize them and thereby reduce a significant load of sediment to the stream. Because the stream has the potential to support coldwater (trout) fisheries, the county will work with landowners and volunteer groups to improve habitat in the stream. There will also be opportunities to create habitat for a more diverse array of aquatic life (invertebrates, amphibians, and reptiles) once the nonpoint pollution is significantly reduced. The Wisconsin Buffer Initiative Report ranks the watershed as having a medium/low potential for fish habitat response if sedimentation can be controlled but a medium/high potential for response if sedimentation can be controlled with riparian buffers. This project will also help reduce sediment loading to the Little Sugar River.

Little Sugar River
The river for which this watershed is named begins in southern Dane County and runs 28 miles before merging with the Sugar River at the Albany Millpond. From New Glarus to just outside of Monticello, the stream is covered by a drainage district. Although warm water forage species dominate the lower 19 miles from the mouth up to the Sugar River State Trail, this portion of the river is managed as a warm water sport fishery. Gamefish and panfish, while not abundant, are present in this stretch of the river (Surface Waters of Green Co.). Approximately 1,200 acres of wetlands adjoin the lower portion of the river as part of the Albany State Wildlife Area, which provides valuable habitat for wildlife, buffers the stream and provides other important wetland functional values. Those in the drainage district are removing trees from the banks to allow grass to grow and better stabilize the banks.
Six miles of river above New Glarus, a stretch commonly known as the New Glarus Branch, is managed as a Class II trout stream and is classified as an ERW. Brown trout are stocked in this section of stream wherever the habitat is suitable (Bush, pers comm).The Green County LWCD and DNR have been working with landowners on trout stream improvement projects over the past several years.
The New Glarus wastewater treatment facility discharges to this river. Recently, the village built a new facility in order to eliminate problems caused by its previous aging plant.
A 2002 fish and habitat survey conducted above New Glarus showed various year classes of brown trout and cold water forage species, but overall the stream lacks good habitat. The fishery may respond favorably to habitat work and reduction in sediment load to the stream, which has been started in the last several years.

Little Sugar River – West Branch
While currently having a warm water sport fishery classification, the upper 5.6 miles of this stream currently support, and can support a Class III trout fishery, mostly as a result of the influence of the good water quality in the Hefty Branches. The lower mile supports a warm water fishery. Much of the stream is ditched. These stretches are several feet deep and have sluggish flow (Surface Waters of Green Co). The stream has not been monitored in recent years.

Pioneer Valley Creek
This stream runs through a highly pastured watershed which results in a fairly poor quality stream with scarce bank cover and heavy erosion. Only small numbers of forage species are present in the stream. It is on the state's list of impaired (303d) waters due to nonpoint source impacts. It has not been monitored in recent years. It is very similar to Legler School Branch. The LWCD is applying for a TRM grant to help cost share the needed practices to improve the stream

Silver School Branch
This small stream currently supports a warm water forage fishery, but could potentially be a cold water fishery. Most of its watershed is developed for agriculture (Surface Waters of Green Co.). Due to habitat degradation from nonpoint source pollution, the stream is listed as an impaired water on the state's 303(d) list. The stream has not been monitored in recent years.

Spring Valley Creek
Originating near the Dane County line, Spring Valley Creek runs southward along State Highway 69 and joins the Little Sugar River on the north side of New Glarus. Much of the stream flows through agricultural land that was formerly cultivated or pastured. The transition of the land from these agricultural uses back to a wild state has allowed the development of good herbaceous and woody bank cover (Water Resources of Green Co.). This warm water forage fishery is classified as an ERW. The rare redside dace has been found to inhabit its waters. The stream is impacted

by runoff from the adjacent highway and potentially by a new housing development just north of New Glarus. The stream has not been monitored in recent years.

Ward Creek
This small, clear stream begins near the Dane County line and flows south for 4 miles before entering the Little Sugar River east of New Glarus. Ward Creek flows through an agricultural valley, but there is some buffering along the banks with grasses and shrubs. There is an abundance of aquatic macrophytes (Water Resources of Green Co., Amrhein , pers. obs). The stream is a Class III trout stream for two miles up from its mouth. This section has the potential to be a Class II stream and is designated as an ERW. The rare redside dace has been found in the stream. Sampling of fish in 2002 showed the presence of small brown trout along with sculpin and other forage fish. The stream has the potential to respond to stream bank stabilization and habitat improvement work (Himebauch, pers. comm.).

RECOMMENDATIONS

The DNR should conduct condition monitoring on Burgy Creek, the 3 branches of Hefty Creek, the Little Sugar River, Spring Valley Creek, and Ward Creek to determine stream status and look for the presence of rare species.

The DNR should conduct baseline monitoring on Legler School Branch, West Branch Little Sugar River, Silver School Branch, and Pioneer Valley Creek to determine the status of their listing on the 303d list and/or source of impairment.

The village of New Glarus should identify opportunities and take measures to protect the Little Sugar River, and Spring Valley Creek such as enacting and enforcing a stormwater management ordinance, improved enforcement of construction site erosion control provision, and acquisition of parkland and natural areas adjacent to the Little Sugar River and along drainageways leading to the river.

Evaluate potential stream improvement project for channelized areas of the Little Sugar River.

Residents in the Pioneer Valley sub-watershed should be encouraged to sign up for CREP

WORKGROUP PRIORITIES

Eight priorities were set by the local workgroup. Those were:

1. Nutrient management
2. Manure storage/barnyard runoff control
3. Groundwater protection
4. Soil erosion reduction
5. Education
6. Streambank improvement/fish habitat/ stream buffers
7. Industrial waste spreading
8. Woodlands, wetlands, and wildlife management

The eight priorities will be explained in more detail. Topics that could be discussed on each are such things as:

- Past practices done by the Land and Water Conservation Department that work well.
- New ideas to be working on.
- Programs that should/could be utilized to address each priority.
- Goals.
- Information and education strategy.
- Other agencies and/or groups to help achieve goals.

This plan's priorities and goals will be evaluated annually and progress tracked through annual accomplishment reports.

Nutrient Management

Nutrient management needs to be a high priority for everyone. It is not only for the value added to the land, but that if nutrients are over applied they may pollute our streams, lakes, and groundwater. The office must educate farmers on the usefulness and cost savings of a nutrient management plan.

1. Continue the MALWEG (Multi-Agency Land and Water Education Grant) program. Dozens of farmers have gone through this program and have learned how to properly take soil samples, know how much their manure spreader loads weigh, and have written their own nutrient management plan. These farmers have told us they saved thousands of dollars by not using extra fertilizer each year that they would have spread without a plan.

2. Continue the advanced nutrient management class. It will be held every other year (in even years). It gives farmers that have been through the basic NM class a chance to learn more about nutrient management and discuss current issues in the industry.

3. Education on manure spreading during winter and especially during snow melt/runoff events. Too many are still spreading manure on land that should

not be receiving nutrients at critical times of the year. Some landowners would like to create an ordinance for winter hauling plans.

4. Ask UW-Extension to look at the fertilizer recommendations. Farmers are concerned that with increased plant populations, that the fertilizer recommendations need to be increased as well. Some farmers are worried that the book values for manure are not accurate for N, P & K; they should be researched further.

Manure Storage/Barnyard Runoff Control

Ask a livestock farmer what his/her biggest question is in the near future and they will probably ask you how they will be required to handle their manure over winter.

1. Manure storage ordinance. Green County has and enforces a manure storage ordinance, originally adopted in May 1997.

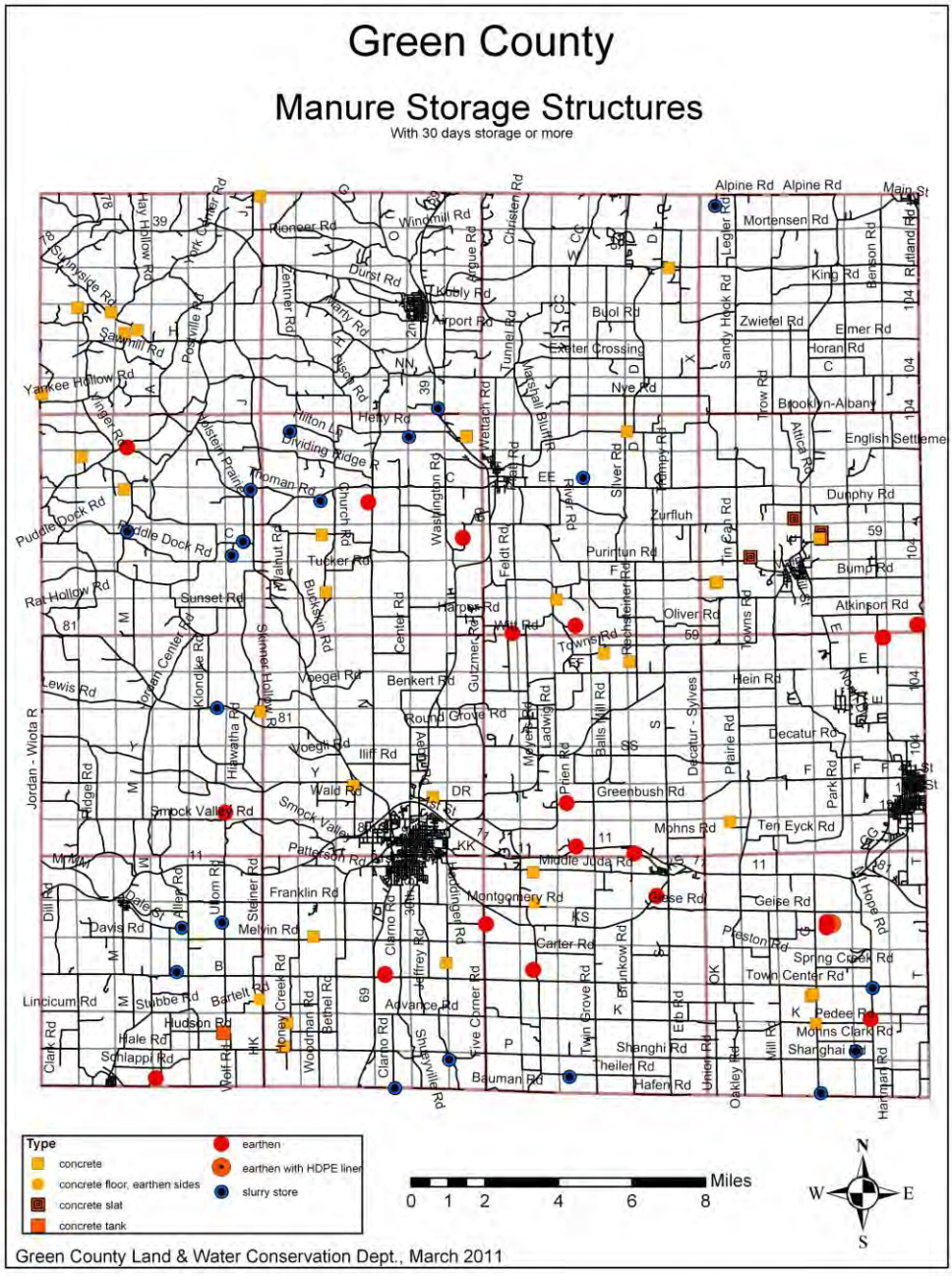
2. Barnyard runoff. Over the past years, numerous barnyard runoff control systems have been installed with cost-sharing through federal and state funds. These projects are expensive, time consuming, and do not change the main problem that originally existed before installation of the project – management. Some of these barnyards have been abandoned and are now either sitting empty or have a horse or goat on them. However, some are being used and used well. These were well worth the money invested and they significantly reduce pollution. One thing must be remembered – these farmers are good managers. Cost-sharing must still remain available to farmers for the installation of barnyard runoff control systems, but very careful judgment must be used when projects are selected.

3. The Animal Waste Advisory Committee recommended that everyone in Green County follow the four animal waste prohibitions. These are as follows:
    a. Livestock operations may have no overflow of manure storage structures.
    b. Livestock operations may have not unconfined manure piles in a water quality management area. A water quality management area is described as either:
        1. + Within 1000 feet of the ordinary high-water mark of navigable waters that consist of a stream or river.
        2. + A site that is susceptible to groundwater contamination.
        3. + Has the potential to be a direct conduit to groundwater.
    c. Livestock operations may have no direct runoff from a feedlot or stored manure into the waters of the state.
    d. Livestock operations may not allow unlimited access by livestock to waters of the state in a location where high concentrations of animals prevent the maintenance of adequate sod cover.

4. Address Winter Spreading of Manure. The department doesn't feel that an ordinance is appropriate at this time. We will try to educate the daily haul farmers about the risks they pose by spreading next to streams and during run off events.

5. Livestock Siting Ordinance. Green County adopted this ordinance by the county board in November 2006. This ordinance regulates farms with 500 or more animal units or farms that expand by 20% or more. We have only had two farms that have gone through the process and received a permit. It is in the best interest of all large farms to get a livestock siting permit, as it is a good insurance policy for them in the future in that neighbors can't complain regarding odor issues that may arise.

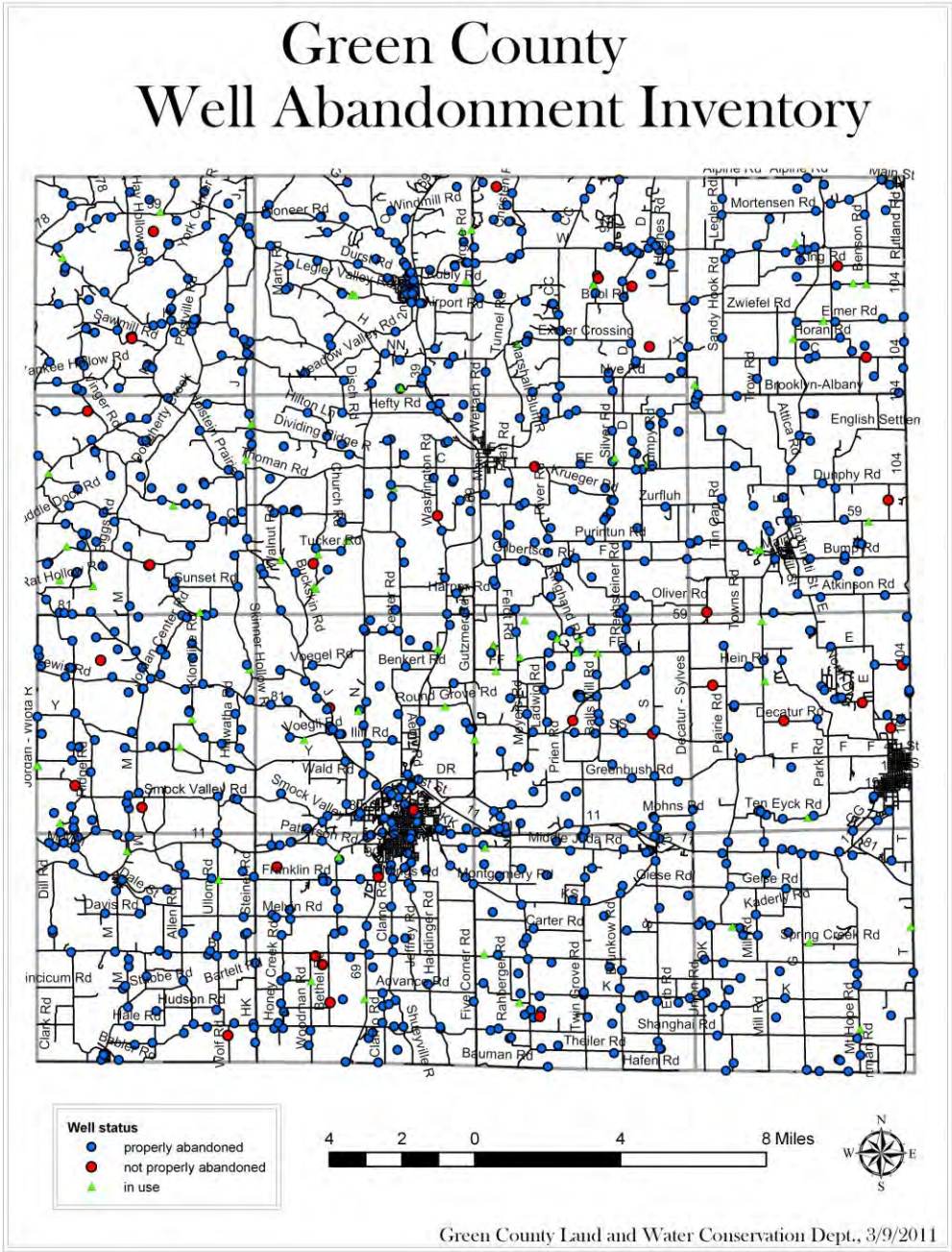
6. Manure Storage Inventory Inspections. The office will inspect all manure storages built and used in Green County to check the integrity of the structure. They will be checked biannually.



Groundwater Protection

Green County adopted a Private Water Systems Ordinance in 2003. Since that time 477 old, unused wells have been properly abandoned. Cost-sharing money is available through LWRM and EQIP. The office is keeping a database on all wells that are either done or are to be done. We have a record of 946 wells properly abandoned since 1953. We believe there are thousands more yet to be properly abandoned that we have not found yet.

In September of 2008, the Green County Board of Supervisors adopted an amendment to the Private Water Systems Ordinance. This ensures that newly drilled wells are properly located and drilled. All new wells drilled in the county must apply for the permit. Since the ordinance was passed 138 wells have been permitted. They are either new or replacement wells.

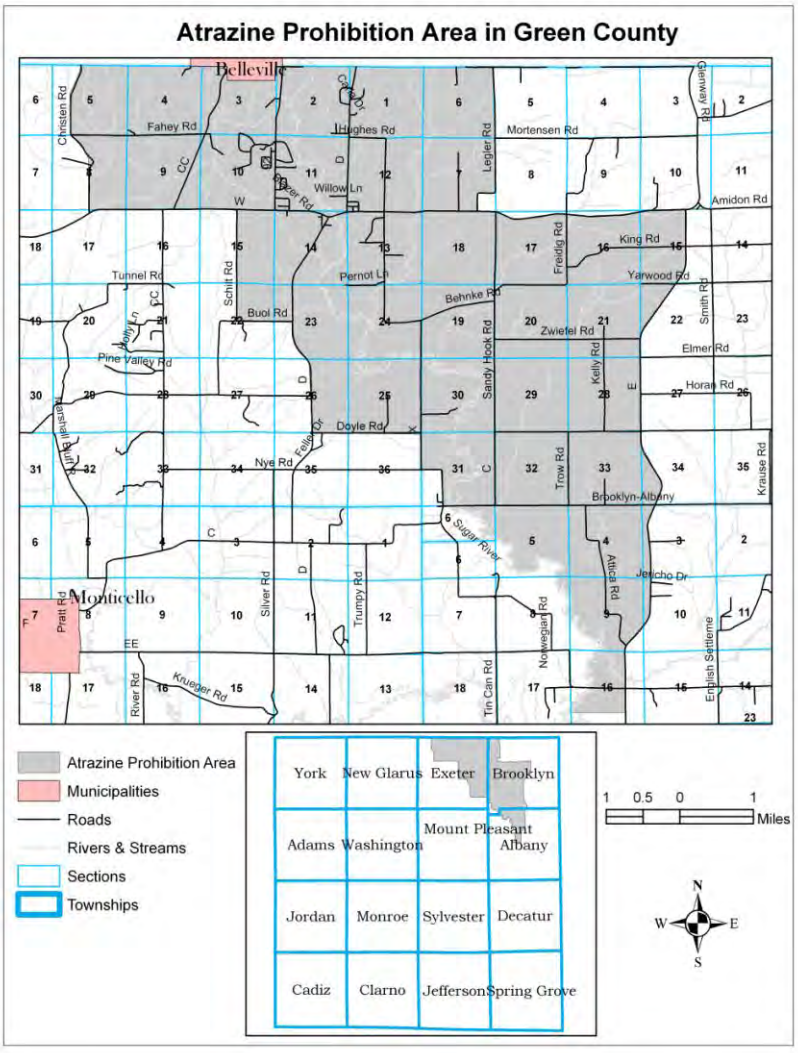


1. Continue to cost-share the proper abandonment of unused wells and cisterns.

2. Educate landowners through radio programs, news articles, and presentations at the Green County Leaders Program on the importance of testing their well water and to properly abandon any unused well they may have on their property in order to protect our groundwater supply.

3. Promote a well sampling program. Most landowners do not realize they should test their well every one to two years. 13% of Green County wells have coliform bacteria, 23% of Green County wells have over 10 mg/l of nitrate nitrogen, which exceeds the state and federal limits for drinking water and 10% are above the recommended levels of arsenic.

4. Educate landowners on proper herbicide applications. The biggest seller of Roundup is Wal-Mart. There are increasing problems associated with glyphosate herbicide use. Make landowners aware of the atrazine prohibition area in the county.



5. Continue to issue permits for new wells to be drilled. This ensures that new wells are drilled in accordance with state law setbacks and that any old wells on the property are properly abandoned.

Soil Erosion Reduction

Soil erosion control has always been a significant concern in Green County. Over the years, Green 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: LWRM, Lower East Branch Pecatonica Priority Watershed, Farmland Preservation Program (FPP), Environmental Quality Incentives Program, Conservation Reserve Program, Conservation Reserve Enhancement Program, Trout Unlimited, and the list goes on. The local workgroup has set several priorities in soil erosion reduction.

1. Control erosion to "T". Write conservation plans to meet the erosion rate "T" and not use alternative planning. This could be a huge challenge in the coming years, as NRCS proposes to change some of the T & K factors of our soils (lowering T values).

2. The Land and Water Conservation Department will continue to promote the soil and water conservation standards. The LWCD will monitor the 109 long-term FPP agreements (LTAs) every four years, which cover 17,263 acres. A Farmland Preservation Plan revision needs to be done by the end of 2012.

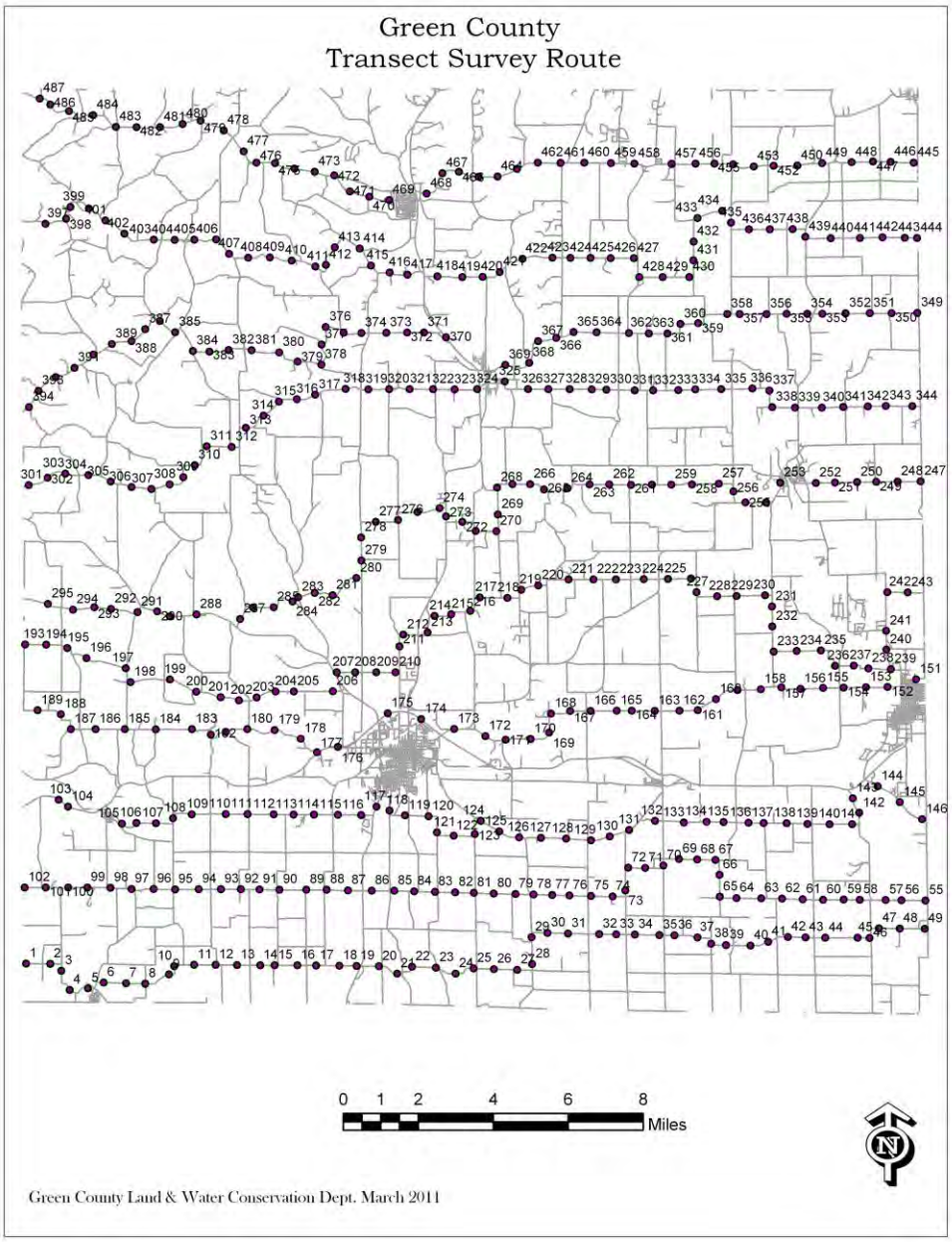
3. Landowners feel vertical tillage isn't given enough conservation credit. More studies and field trials need to be done to demonstrate how much erosion potential is there as compared to no-till.

4. Contour strip cropping, contour farming, and grassed waterways. These practices have been the backbone of erosion control practices installed. Grassed waterways need to be installed as well as maintained. The LWCD is starting a "waterway installation letter program". Landowners will be notified by letter that a waterway is needed in a specific field (a map will also be included). They will be given three years to build it (with reminders for those years), with or without cost-sharing, and if they don't attempt to remedy the situation, they will be turned over to NRCS/FSA to be assessed for conservation compliance.

5. With the increasing commodity prices, it may be harder to convince landowners in farm programs of its benefits. Without being enrolled in farm programs, they are not required to practice conservation (highly erodible land and wetlands). Despite this, the LWCD is charged with ensuring farmers are still in compliance with the ag performance standards.

6. Landowners would like to see an annual set aside program brought back. Some fields are small and difficult to farm. They are planted to row crops out of financial necessity. It would be best to be able to seed these fields down and still receive a payment on them.

7. Conduct the annual transect survey. A transect survey is a survey of a number of control points located throughout the county. This survey will be done every spring to identify a number of different issues, such as identify the land use, identify the types of erosion



occurring, identify areas in the county where more erosion is occurring, measure the amount of conservation tillage being used, etc.

8. One on one contacts. Green County will notify landowners of any determinations of nonpoint source pollution as well as soil loss through the process of conservation plan preparation. This individual meeting allows for in-depth discussion of soil erosion problems and conservation practices. 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, or to look at something on their land for our recommendation.

Education

1. The department will continue to have a biweekly radio program. Current topics and events will be covered.

2. Press releases and news articles will be done to cover timely conservation issues and upcoming events.

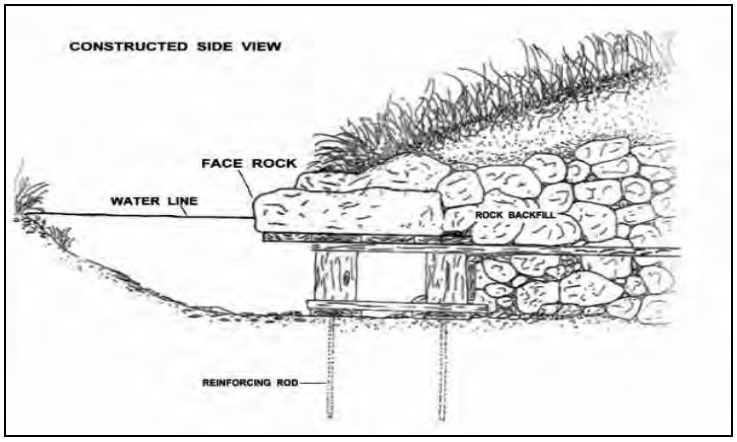
3. The department in conjunction with the Moose Lodge, UW-EX, and NRCS will continue to hold an annual land-judging contest. And every three years, the department will also continue to host the Southwest land-judging contest.

4. Every year at the Green County Breakfast on the Farm, the department will recognize landowners for their conservation work.

5. Presentations will be done annually by department staff at the Green County Leaders program.

Streambank Bank Improvement/ Fish Habitat / Stream Buffers

Streambank improvement has probably been the most popular implemented conservation practice in Green County. Funding sources available are from the Land and Water Resource Management cost-share program (LWRM), Trout Unlimited (TU), Environmental Quality Incentives Program (EQIP), and Wildlife Habitat Incentives Program (WHIP). We will continue to work with the Green County Conservation League and Trout Unlimited to build lunker structures.



Cross section of a lunker structure.

1. Continue cost-sharing for the installation of riprap, sloping and seeding of banks, and lunker structures. Money sources from LWRM, EQIP, WHIP, and TU will be utilized to stabilize the banks and improve the fish habitat. Implementing these practices not only increases water quality, but also improves the fishery, which will increase tourism.

2. Remove box elders and willow trees in stream corridors. These trees are prone to disease, fall over and create more erosion and increased flooding problems. Our office should educate landowners on why and how to remove them.

3. Focus our work on the Little Sugar River watershed. The Little Sugar River and its tributaries have potential to be a great fishery. Contacts have been made and the landowners have shown much interest.

4. An operations and maintenance agreement is written each time we do a project. We need to make sure maintenance is done, so we are not redoing any projects every twenty years. An annual inspection needs to be done for each project.

5. Targeted Resource Management (TRM) grants. The department should continue to write grants for those watersheds of the county that are a 303(d) impaired, a Total Maximum Daily Load (TMDL) is written, a favorable WI Buffer Initiative score for stream improvement if there were a reduction of sediment to the stream.

6. Promote grass filters. Encourage participation in the Conservation Reserve Program (CRP) and the Conservation Reserve Enhancement Program (CREP) for the establishment of grasses along streams. These types of practices greatly improve the water quality of the streams, as well as provide cover for wildlife. Once installed, they need to be maintained. Burning is the best method.

Industrial Waste Spreading

Industrial waste spreading has been a major concern in Green County for a numbers of years. Landowners who live next to slurry stores or fields that are spread on by this type of waste are greatly affected. The smells associated with this waste are terrible. One must wonder that if it smells this bad, is there any good in it? One must also wonder what if it gets in our groundwater. How much damage will it incur? On the other hand, they are spreading a byproduct of the many products the general public demands. Land spreading seems to be the most economically and environmentally viable. Green County is a popular destination for it because of the dairy base, meaning we have open land throughout the summer (after hay cuttings). One wonders why this waste is able to be applied during the winter, when all CAFOs are restricted from winter spreading.

1. The DNR currently regulates permitting for industrial waste spreading. Unfortunately, not enough manpower is put on this project. Self-samples are allowed to be taken. This makes one wonder if the samples are skewed? Land applications do not always look as though they are correct. Waste that is puddled on a bottomland field for days or watching pink or brown runoff coming down a hillside makes you think that an over application has been done. More staff must be used to regulate these types of haulers. Our office will continue to investigate complaints and refer them to the DNR.

Woodlands, Wetlands, and Wildlife Management

Woodlands, wetlands and wildlife management, over the years, have not received the needed respect they deserve. The local workgroup came up with this list of priorities for properly caring for Green County woodlands, wetlands, and wildlife.

1. Managed forest law. Due to assessment values changing on wooded areas, encouragement should be made to participate in the Managed Forest Program to prevent the destruction of woodlands through pasturing or development of residential areas. Recent changes to this program have made it not as lucrative as before, but are still a good option for woodland owners to look at.

2. Continue to supply tree planters, tree spuds, and sprayers to landowners at a nominal fee.

3. Continue the tree sale program.

4. Construct scrapes and wetland restoration through LWRM, EQIP, and Continuous CRP.

5. Make sure people know about controlling non-native species. Some emerging as problems are Hill Mustard, Garlic Mustard, Buckthorn, Spotted Knapweed, and Leafy Spurge. Non-native plant species pose potential economic, health, ecological, and recreational problems.

6. Continue to administer the Wildlife Damage Abatement Program. Along with this, continue to administer the Deer Donation program.

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 Green County and our Land and Water Conservation Department? The LWCD has long been recognized as the primary tool to bring these water quality performance standards into the field. The WCD 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 ag 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). NPM plan must be in place by Jan. 1, 2005 for high priority waters (303d, outstanding/exceptional) and Jan. 1, 2008 for all others

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
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.

Best Management Practices (BMPs)

There are a multitude of conservation practices a person can install to address water quality and soil erosion. Many of the following are cost-sharable and would be required in order to be in full compliance with NR151:

- Access road or cattle crossing
- Animal trails and walkways
- Contour farming
- Cover crop and green manure crop
- Diversions
- Field windbreaks
- Filter strips
- Grade stabilization structure
- Heavy use area protection
- Livestock fencing
- Livestock watering facility
- Manure storage system
- Manure storage closure
- Milking center waste control systems
- Nutrient management
- Pesticide management
- Prescribed grazing
    - Management plan
    - Temporary fencing
    - Permanent fencing
    - Seeding permanent pasture
- Relocating or abandoning animal feeding operations
- Residue management
- Riparian buffers
    - Installation
    - Maintenance
- Roofs
- Roof runoff systems
- Sediment basins
- Sinkhole treatment
- Streambank and shoreline protection
- Stripcropping
- Subsurface drains
- Terrace systems
- Underground outlet
- Waste transfer system
- Water and sediment control basins
- Waterway systems
- Well decommissioning
- Wetland restoration

Local Implementation

The Green County Land and Water 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, Green County Manure Storage Ordinance, Green County Private Water Ordinance, and Green Counties Soil and Water Conservation Standards for the Farmland Preservation Program.

It should be noted that the implementation of each component of the Green County Land and Water 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 goals of the Green County Land and Water Resource Management Plan will be accomplished through coordination with local, state, and federal agencies and private organizations. Green 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 Green County:

USDA Programs –

1. Environmental Quality Incentives Program (EQIP). Provides cost-sharing for a variety of conservation practices 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 Green County) that provides incentives to create buffers along streams and waterways.
5. Grassland Reserve Program (GRP). Provides incentives to manage permanent pasture and hayland.
6. Wetlands Reserve Program (WRP). Provides cost-sharing to restore wetlands previously altered for agricultural use.

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.

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.

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. 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

Definition of a Priority Farm

Green County defines a priority farm as land lying within a 303 (d) watershed or within a Water Quality Management Area (WQMA), and having one or more issues of non-compliance with the

Water Quality Performance Standards found in DNR Administrative Code NR 151. The priority farms will be identifiable through the use of GIS. We will use the DNR stream layer and Green County tax parcel layer to create a buffer of parcels within 300 feet of 303 (d) streams and their tributaries. Then we will query soils that meet criteria for being susceptible to groundwater contamination in a WQMA. If a private and municipal well layer is available, we would buffer those wells to find parcels that also meet conditions for groundwater contamination susceptibility. If needed and if time and staff allow, a private well GPS layer could be created. By identifying these priority parcels, we'll be able to more efficiently address potential soil erosion and degraded water quality areas. In addition to these farms within close proximity to streams, farms with complaints- especially chronic complaints and farms with failed manure storages will be priority farms to address.

Information and Educational Activities

The LWCD realizes the implementation of the Ag Performance Standards will require a large amount of emphasis in regards to educating landowners within Green County. The LWCD will distribute information and educational material from various sources such as DNR, DATCP, NRCS, FSA, and LWCD 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 LWCD will have within those procedures;
4. Make landowners aware of expectations for compliance and consequences for non-compliance.

Monitoring and Evaluation

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 LWCD continues to conduct an annual Transect Survey looking at cropland erosion trends; we will continue to use this as a measurement tool.

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 LWCD believes good connections can be made to other measurable program goals and objectives.

Financial Considerations Within NR 151

Many farmers voluntarily install numerous 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. Green 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.

The cost sharing requirements for compliance applies to sites found not to be in compliance prior to October 1, 2002. 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

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 visit with landowners to go over and discuss the utilization of our NR 151 inventory and evaluation form.

The number, frequency and location of the on-site farm visits will strongly hinge on the current and future level of staff funding and cost sharing resources that will be available to the LWCD 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 (see Appendix A), 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, identify BMPs to achieve compliance, 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 are used.
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 LWCC

Note: A cover letter signed by the LWCD describing the ramifications and assumptions related to the status report will be attached.

Maintaining Public Records and Landowner Notification

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)

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 BMP's 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)

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 LWCD will draft a program specific cost share agreement including a schedule for installing or implementing BMP's. Potential practices and cost share rates can be found in ATCP 50.

The LWCD 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

Re-evaluate Parcel for Compliance

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

If a landowner refuses to respond appropriately to official notice of non-compliance or is in breach of a cost share contract, the LWCD will prepare and issue a "Notice of NR 151 Violation"

letter. This Notice will be pursuant to processes outlined and authorities obtained in the Green 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 BMP's and
(2) Non-regulatory attempts to resolve the situation have failed

Process for Appeal of Non-Compliance Decision

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

Where Does Implementation Start and 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 Green County.

Currently the LWCD has begun the process of utilizing GIS and on-site visits to begin the inventory of several watersheds within Green 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 LWCD and staff funding is not keeping up with the workload, we will be continuing to search out collaborative funding endeavors with other entities throughout Green County. These collaborative funding avenues and potential access to cost share implementation dollars will likely guide our priority setting over the next five 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 LWCD 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 LWCD 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.

First five year work plan

For the ten year Green County Land and Water Resource Management Plan

Priority 1: Nutrient Management Planning

Objectives	Actions	Who	When	Anticipated Annual Outcome
Increase acreage managed by a nutrient management plan	Encourage use of EQIP funds or other available cost- share source to write a plan, educate farmers so they can write their own Nutrient Management Plan	UWEX, NRCS, LWCD, FSA	2011-2015	2,000 acres of nutrient management plans
Prevent manure run-off incidents/ accidents	Follow Manure Management Taskforce's recommendations	LWCD, NRCS, DNR	2011-2015	No manure "spills" or runoff incidents

Estimated annual LWCD staff costs for priority 1: $10,000
Estimated annual costs other than staff = $56,000

Priority 2: Manure Storage/ Barnyard Runoff Control

Objectives	Actions	Who	When	Anticipated Annual Outcome
Enforce the Green County Manure Storage Ordinance	Respond to complaints and new structures	LWCD, NRCS, Zoning	2011-2015	4 storage structures built to NRCS specs
Encourage barnyard runoff control systems to be built	Carefully select eligible projects	LWCD, NRCS	2011-2015	1 barnyard control project
Follow Animal Waste Advisory Committee recommendations	Monitor farms with problems and suggest resolutions	LWCD, NRCS, FSA	2011-2015	1 cost shared project to alleviate problems
Livestock Siting Ordinance	Review plans submitted	LWCD, Zoning, UWEX	2011-2015	Make CAFOs aware of the rules
Manure Facility inspection	Inspect structures previously installed biannually	LWCD	2011-2015	Check for structural integrity

Estimated annual LWCD staff costs for priority 2: $39,000
Estimated annual costs other than staff = $400,000

Priority 3: Groundwater Protection

Objectives	Actions	Who	When	Anticipated Annual Outcome
Encourage proper well abandonment of unused wells and cisterns	Use cost- share funds to assist landowners with the expense of having the wells professionally filled	LWCD NRCS UWEX	2011-2015	30 properly abandoned wells
Educate landowners of the importance of testing their water and the importance of protecting groundwater	Presentation at the Green County Leaders Program. Write news articles and radio programs to educate the public	LWCD NRCS UWEX DNR	2011-2015	1-2 presentations a year 4 radio programs dedicated to groundwater education 1 news article per year
Promote a well sampling program	Provide information in order to sample wells	LWCD UWEX DNR	2011-2015	20 landowners have their water sampled
Continue to track well abandonment with GIS program	Periodically update the map and database	LWCD Local well drillers	2011-2015	Map of wells to monitor and those properly filled

Estimated annual LWCD staff costs for priority 3: $15,000
Estimated annual costs other than staff = $20,000

Priority 4: Soil Erosion Reduction

Objectives	Actions	Who	When	Anticipated Annual Outcome
Control erosion to "T"	Write conservation plans to "T"	LWCD NRCS	2011-2015	3,000 acres of cropland conservation plans
Maintenance and construction of grassed waterways, use of contour strips and contour farming	Write conservation plans using contour farming and strip cropping. Make cost-share available for maintenance and construction of grassed waterways.	NRCS LWCD DATCP	2011-2015	250 acres strips laid out 10 acres of new waterway constructed
Promote no till, conservation tillage, and shorter rotations	Do educational presentations on no till and conservation tillage. Write conservation plans using no till.	UWEX NRCS LWCD	2011-2015	500 acres of conservation plans

Conduct the transect survey	Conduct survey annually on a set number of control points	LWCD LWCC	2011-2015	Reduce the county soil loss, monitor tillage and cropping trends in the county
Educational contests, programs and newspaper articles	Conduct weekly radio programs, land judging contests, recognition of conservation achievements and special observances, write newspaper articles,	LWCD, NRCS, UWEX, FSA	2011-2015	weekly radio programs 1 annual land judging contest 2 Southwest land judging contests
One on one contacts	Meet with landowners to discuss environmental issues, methods to solve and possible cost- share opportunities.	LWCD, NRCS, UWEX, FSA	2011-2015	10 landowners will be contacted
SAFE contracts	Promote and write plans for eligible landowners in York Township	LWCD, NRCS, FSA	2011-2015	5 contracts

Estimated annual LWCD staff costs for priority 4: $45,000
Estimated annual costs other than staff = $500,000

Priority 5: Education (a part of all priorities)

Objectives	Actions	Who	When	Anticipated Annual Outcome
Recognition for landowners in several categories: outstanding farmer, wildlife habitat development and streambank	Present with awards at the Green County Breakfast on the Farm	LWCD, LWCC, NRCS	2011-2015	2-3 awards presented
Educate new landowners of the programs and cost share opportunities with agencies in the office	Put together a new landowner packet that would be available to new rural landowners	LWCD, NRCS, FSA, UWEX, DNR, Zoning	2011-2015	5 New landowner packets

Estimated annual LWCD staff costs for priority 5: $7,000
Estimated annual costs other than staff = $3,000

Priority 6: Streambank Improvement/ Fish Habitat Enhancement/ Stream Buffers

Objectives	Actions	Who	When	Anticipated Annual Outcome
Streambank protection, including fencing of streams and stream crossing.	Educate on county and state cost-sharing programs, install BMPs around streams	LWCD, DNR, DATCP	2011-2015	2 crossings 2 fenced out of the stream properties
Install lunkers and other fish habitat structures	Provide cost- share opportunities/ funding to install structures. Lunkers constructed by Conservation League installed where requested.	LWCD, NRCS, DNR, Trout Unlimited, Green County Conservation League	2011-2015	25 structures installed
Continue CREP	Disperse educational material, direct mailings to eligible landowners	LWCD NRCS FSA	2011-2015	10 acres of newly enrolled CREP
Restore Little Sugar River and its tributaries to an improved fishery	Promote cost- sharable BMPs, habitat work	LWCD, NRCS, TU, DNR	2011-2015	3 stream projects
Receive TRM grant funds on projects on streams with TMDLs written	Write TRM grants for projects	LWCD DNR	2011-2015	1 TRM Grant project
Promote installation of grass filters and riparian buffers, especially CREP	Write newsletters, news articles, radio programs, and conservation plans.	LWCD, NRCS, FSA, DNR	2011-2015	4 radio programs dedicated to grass buffers
Tree removal in drainage districts	Work with landowners in the 4 districts to remove trees along banks	LWCD, DNR, NRCS	2011-2015	4 miles of tree clearing

Estimated annual LWCD staff costs for priority 6: $35,000
Estimated annual costs other than staff = $400,000

Priority 7: Handle Industrial Waste Spreading

Objectives	Actions	Who	When	Anticipated Annual Outcome
More stringent regulations for industrial waste spreading	Report suspicious or incidental activity to the DNR	DNR, LWCD, NRCS, UWEX	2011-2015	Contact person in the DNR with any complaints

Estimated annual LWCD staff costs for priority 7: $1,000
Estimated annual costs other than staff = $0

Priority 8: Management of Woodlands, Wetlands and Wildlife

Objectives	Actions	Who	When	Anticipated Annual Outcome
Make public aware of resources available for forest management	Make personal contacts, radio programs, and write news article	DNR LWCD	2011-2015	10 MFL plans
Make tools available for woodland management	Provide tree planters, spuds, and sprayers to landowners at a small charge	DNR LWCD	2011-2015	Rent the planters to 10 people Maintain sprayer and planters
Construct wetland restoration and scrapes	Secure cost sharing to offset the cost through LWRM and EQIP	LWCD, NRCS, USFWS, DNR	2011-2015	2 wetland scrapes installed
Educate the public about the impact of invasive species and how to control	Write news articles and radio programs	DNR, LWCD, NRCS, UWEX	2011-2015	Host a field day in the county
Provide trees to Green County landowners at a reasonable cost	Promote annual tree (and shrub) sale	LWCD, NRCS, DNR	2011-2015	Sell 2,000 trees a year
Administer the Wildlife Damage Abatement Program and Deer Donation	Handle paperwork necessary for reimbursements	DATCP, LWCD, DNR, Meat processors	2011-2015	Reimburse local meat processors for processing

Estimated annual LWCD staff costs for priority 7: $13,000
Estimated annual costs other than staff = $25,000

Total estimated annual LWCD staff costs for all priorities: $165,000
Total estimated annual costs for other staff for all priorities: $ 1,404,000

Green County
Minimum Resource Management Standards

Inventory And Evaluation Form

_____ _____
Landowner Inspection Type (Initial, Final, Compliance)

Location: _____ _____
_____ Date
_____

NR151 - Agricultural Nonpoint Source Pollution Control Standards

EROSION CONTROL

NR151.02 Sheet, rill and wind erosion.

1. _____ *Cropland shall be cropped to tolerable soil loss.*
-Is there a current farm plan?_____
-Is the farm plan an HEL or full resource management plan? _____
-Does conservation plan meet tolerable soil loss? _____

MANURE STORAGE FACILITIES

NR151.05(2) New Construction and Alterations.

2. _____ *New or altered manure storage facilities shall be designed and constructed to USDA NRCS standards.*
-Is there a new or altered manure storage facility? _____
-When was it constructed/altered? _____
-Does the facility meet standards?_____

NR151.05(3) Closure.

3. _____ *Closure of a sub-standard manure storage facility shall occur when facility has not been used in 24 months.*
-Is there a sub-standard manure storage facility? _____
-When was the manure storage facility last used?_____

NR151.05(4) Failing and Leaking Existing Facilities.

4. _____ *Existing manure storage facilities that pose an imminent threat shall be upgraded, replaced or abandoned.*
-What type of liner does it have (if any)? _____
-What is the separation distance between pit and groundwater? _____
-Does the facility pose an imminent threat to public health, fish, aquatic life or is it in violation of groundwater standards?_____

CLEAN WATER DIVERSIONS

NR151.06 Clean water diversions.

5. _____ *Runoff shall be diverted away from contacting feedlots, manure storage areas and barnyard areas within water quality management areas.*

-Is (feedlot, manure storage areas, barnyards) located within WQMA? _____

-How is the water being diverted?

-roof runoff _____

-surface water runoff _____

NUTRIENT MANAGEMENT

NR151.07(3) Nutrient management.

6. _____ *Manure, commercial fertilizer and other nutrients shall be applied in conformance with a nutrient management plan.*

-Does the farm have a certified nutrient management plan? _____

(If there isn't a nm plan, complete Items 7, 8 and 9)

-What is the date of the plan? _____

-Plan developed by: _____

-What is the date of the most recent update? _____

-Does cropland drain to outstanding, exceptional or impaired waters?_____

-How is manure managed? (i.e. daily haul) _____

-How many cropland acres? _____

-What are the type and number of livestock? _____

MANURE MANAGEMENT PROHIBITIONS

NR151.08 Manure management prohibitions.

7. _____ *No overflow of manure storage facilities.*

-Is there a manure storage facility? _____

-Does manure storage facility overflow? _____

8. _____ *No unconfined manure piles in WQMA's.*

-Is (barnyard, feedlot, stored manure) located in a WQMA? _____

-Are there unconfined manure piles in WQMA? _____

9. _____ *No direct runoff from a feedlots, stored manure or barnyards into waters of the state.*

-Is there a direct conveyance through channelized flow from feedlots, stored manure or barnyards to waters of the state? _____

10. _____ *No unlimited access to waters of the state which prevent the maintenance of adequate cover.*

-Do livestock have unlimited access to waters of the state? _____

-Is livestock access restricted to crossings/watering? _____

-Is livestock access restricted through managed grazing? _____

-Are bank and sod cover adequate? _____

Evaluation Completed By: _____

Title: _____

Date: _____

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 streambank or lakeshore is preserved. Self-sustaining vegetative cover includes grasses, forbs, sedges and duff layers of fallen leaves and woody debris.

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

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

Unconfined Manure Pile – a quantity of manure that is at least 175 ft^3 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^2 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.*