

---

## Rapid Watershed Assessment Resource Profile

---

### Le Sueur (MN) HUC: 07020011



Rapid watershed assessments provide initial estimates of where conservation investments would best address the concerns of landowners, conservation districts, and other community organizations and stakeholders. These assessments help land-owners and local leaders set priorities and determine the best actions to achieve their goals.

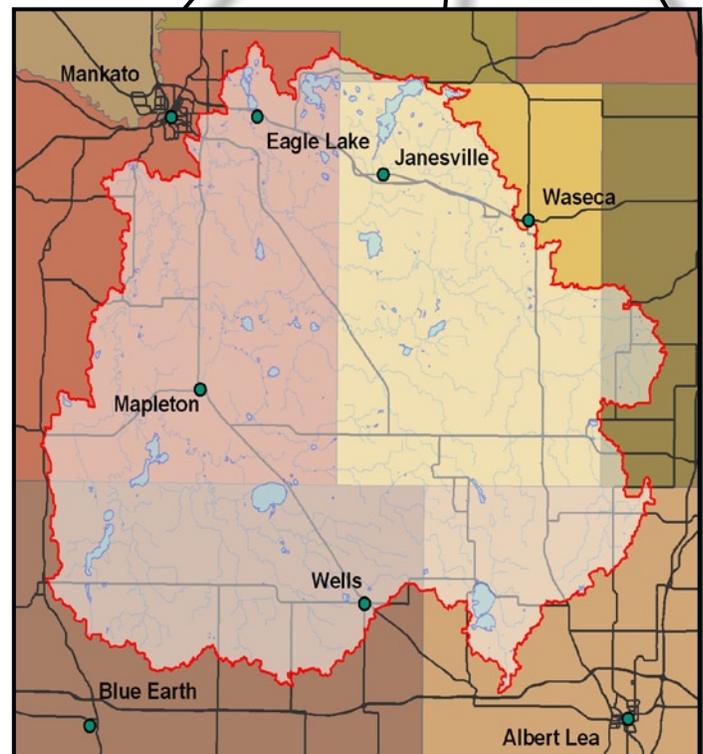
## Introduction

The Le Sueur River rises in northwestern Freeborn County and initially flows northwardly through extreme southwest Steele County into Waseca County, then meandering westerly into Blue Earth County. The Le Sueur empties into the Blue Earth River southwest of Mankato approximately three miles upstream of the convergence of the Blue Earth and Minnesota Rivers.

Pollution of surface waters in the Minnesota River's major watersheds is a moderate to severe problem. The Blue Earth River and its major tributaries, such as the Le Sueur, are having a large impact on the Minnesota River which in turn contributes large amounts of pollution to the Mississippi River.

The main resource concerns in the watershed are sediment and erosion control, stormwater management, drinking and source water protection, drainage management, waste management, nutrient management, surface water quality and wetland management.

Many of the resource concerns relate directly to topography, agricultural practices and increased development in the region resulting in increased sediment and pollutant loadings to surface and ground waters.



### County Totals

<b>County</b>	<b>HUC Acres</b>	<b>% HUC</b>
<b>Le Sueur</b>	2,137	0.3%
<b>Blue Earth</b>	235,925	33.4%
<b>Waseca</b>	225,305	31.9%
<b>Steele</b>	17,786	2.5%
<b>Faribault</b>	156,047	22.1%
<b>Freeborn</b>	69,052	9.8%
<b>Total Acres:</b>	<b>706,252</b>	<b>100%</b>

## Physical Description

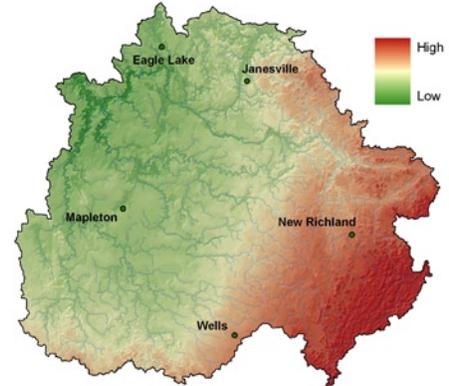
The Le Sueur watershed is located in the Minnesota River Prairie subsection of Minnesota’s ecological classification system. Soils in this HUC are predominantly glacial till plains. Average elevation in the watershed is 1126 feet above sea level, with the highest values being in the Eastern and Southeastern portions of the watershed, while the lowest are found across the central and Western regions approaching the Minnesota River Valley.

Precipitation in the watershed ranges from 29 to 33 inches annually. Most lands within this watershed are not highly erodible, and are well to moderately well suited to agricultural uses. Predominate land uses / land covers are row crops (83%), Residential / Commercial Development (6.5%), Grass/ Pasture/Hay (4%), Wetlands (3.5%), and Open Water (2%).

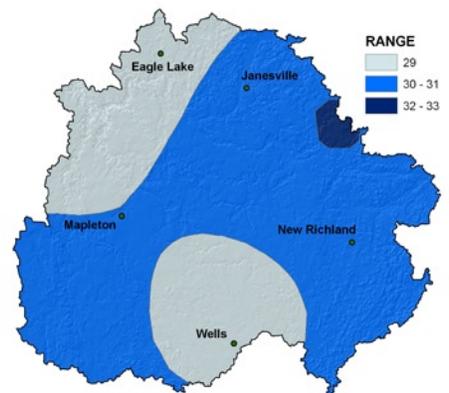
Land use within the Le Sueur watershed is primarily agricultural, accounting for approximately 87% of the available acres. Two-year corn/soybean rotations comprise approximately 93% of cropped lands within the watershed; small grains, hay, grasslands, and lands enrolled in the Conservation Reserve Program (CRP) make up the majority of the balance.

Development pressure is moderate, with increasing farms and shoreline being parceled out for recreation or country homes.

Relief

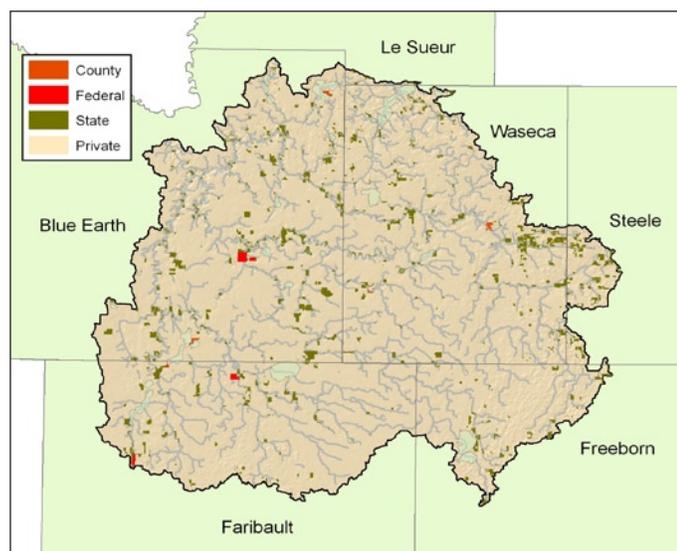


Average Precipitation



## Ownership<sup>11</sup>

Ownership Type	Acres	% of HUC
Conservancy	-	-
County	421	0.1
Federal	874	0.1
State	23,333	3.3
Other Public	-	-
Tribal	-	-
Private Major	-	-
Private	681,624	96.5
<b>Total Acres:</b>	<b>706,252</b>	<b>100</b>

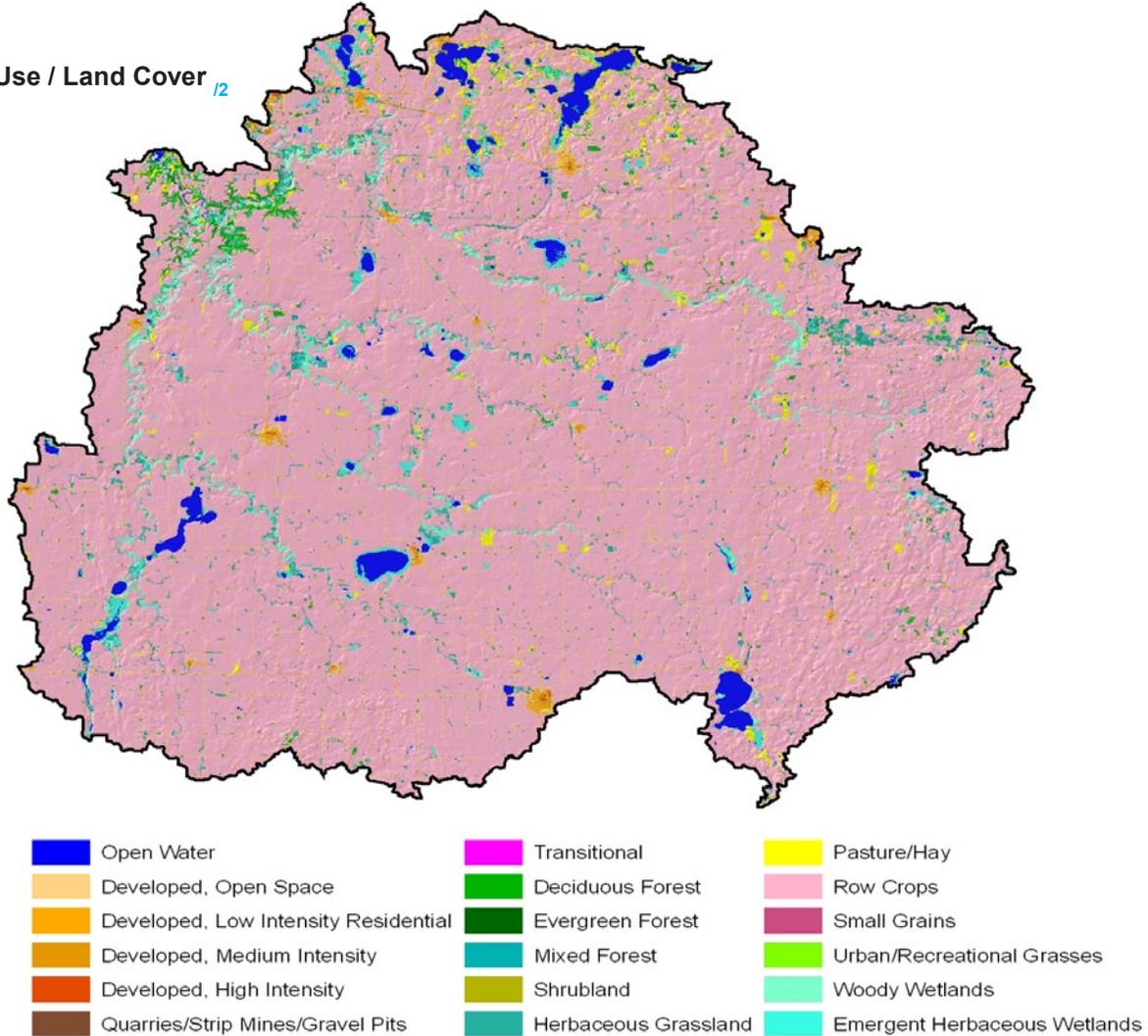


<sup>11</sup> \* Ownership totals derived from 2009 MN DNR GAP Stewardship data and are the best suited estimation of land stewardship available on a statewide scale at time of publication. See the bibliography section of this document for further information.

## Ownership / Land Use

The Le Sueur watershed covers an area of 706,252 acres. Approximately ninety seven percent of the land in the watershed is owned by private landholders (681,624 acres). The second largest ownership type is State, with approximately 23,330 acres (3.3%), followed by Federal with 874 acres (0.12%), and County owned lands amounting to 421 acres (0.06%). Land Use by ownership type is represented in the table below.

### Land Use / Land Cover <sup>/2</sup>



### Ownership / Land Use <sup>/3</sup>

Landcover/Use	Public		Private**		Tribal		Total Acres	Percent	
	Acres	% Public	Acres	% Private	Acres	% Tribal			
Forest	301	0.0%	9,939	1.4%	0	0.0%	10,240	1.4%	
Grass, etc	4,537	0.6%	22,241	3.1%	0	0.0%	26,778	3.8%	
Orchards	0	0.0%	0	0.0%	0	0.0%	0	0.0%	
Row Crops	15,333	2.2%	568,522	80.5%	0	0.0%	583,855	82.7%	
Shrub etc	17	0.0%	730	0.1%	0	0.0%	747	0.1%	
Wetlands	2,919	0.4%	21,508	3.0%	0	0.0%	24,427	3.5%	
Residential/Commercial	842	0.1%	44,945	6.4%	0	0.0%	45,787	6.5%	
Open Water*	664	0.1%	13,749	1.9%	0	0.0%	14,413	2.0%	
<b>Watershed Totals:</b>		<b>24,613</b>	<b>3.49%</b>	<b>681,635</b>	<b>96.5%</b>	<b>0</b>	<b>0.0%</b>	<b>706,252</b>	<b>100%</b>

\* ownership undetermined

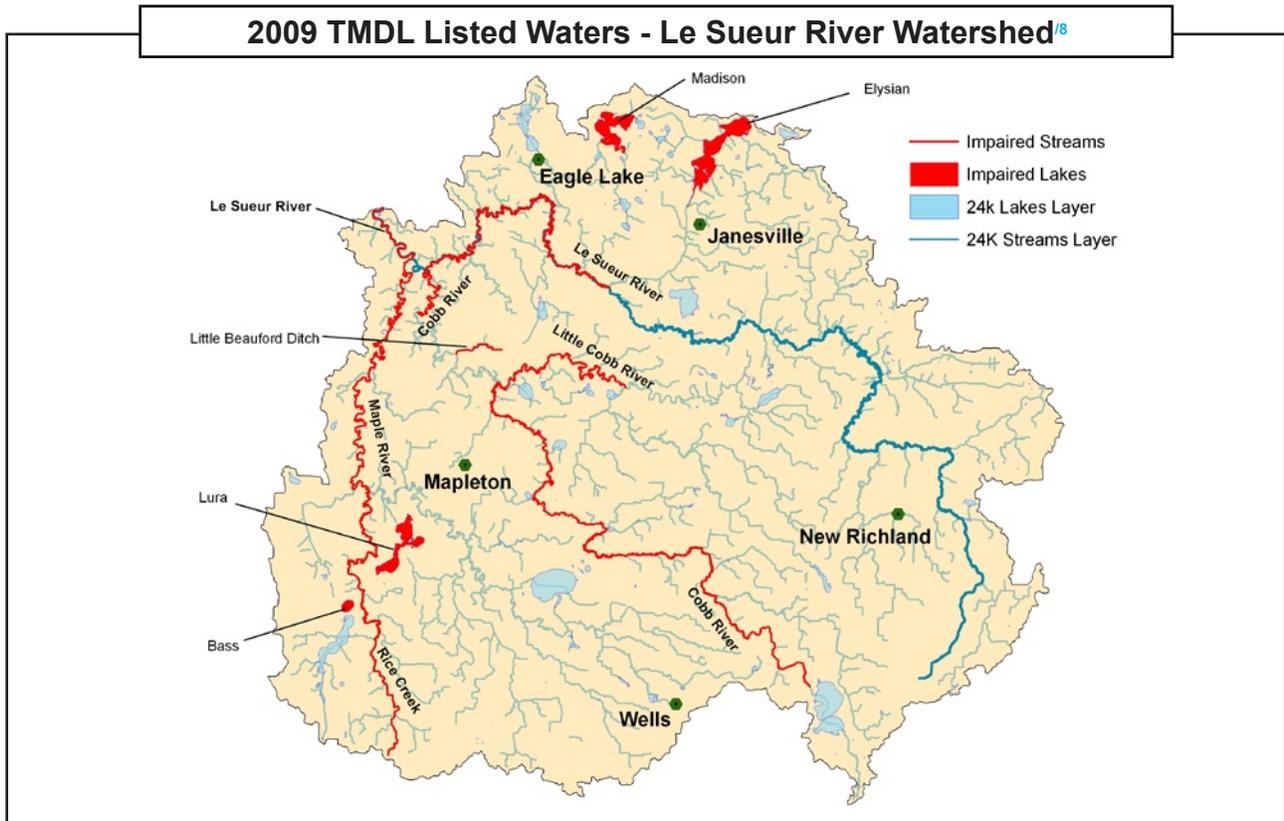
\*\* includes private-major

**Physical Description (continued)**

		<b>ACRES</b>	<b>Cu. ft/sec</b>
<b>2008 Stream Flow Data</b>	<b>USGS 05320500 LE SUEUR RIVER NEAR RAPIDAN, MN</b>	2008 Total Avg.	826.9
		May – Sept. Avg.	808.6
		2008 Peak	5,610
		<b>ACRES/MILES</b>	<b>PERCENT</b>
<b>Stream Data<sup>4</sup></b> (* % of 24k Stream Miles ** % 24k lake surface area)	Total Stream Miles (24K NHD Layer)	1,260	---
	2009 303d/TMDL Listed Streams (MPCA)	96.6	4.6%*
	TMDL Lakes Surface Area (Acres)	5,109	33%**
<b>Riparian Land Cover/Land Use<sup>5</sup></b> (Based on a 100-foot buffer on both sides of all streams in the Streams Layer)	<b>Land Use Type</b>	<b>Acres</b>	<b>Percent</b>
	Forest	1,160	4.4%
	Grain Crops	0	0.0%
	Grass, etc	2,869	10.8%
	Orchards	0	0.0%
	Row Crops	13,186	49.8%
	Shrub etc	54	0.2%
	Wetlands	6,115	23.1%
	Residential/Commercial	1,511	5.7%
	<b>Open Water*</b>	1,576	6.0%
	<b>Total Buffer Acres:</b>	<b>26,471</b>	<b>100%</b>
<b>Crop and Pastureland Land Capability Class<sup>6</sup></b> (Croplands & Pasturelands Only) (1997 NRI Estimates for Non-Federal Lands Only)	<b>1 – slight limitations</b>	80,400	13%
	<b>2 – moderate limitations</b>	372,600	60%
	<b>3 – severe limitations</b>	147,000	24%
	<b>4 – very severe limitations</b>	9,300	2%
	<b>5 – no erosion hazard, but other limitations</b>	2,200	0%
	<b>6 – severe limitations; unsuitable for cultivation; limited to pasture, range, forest</b>	1,200	0%
	<b>7 – very severe limitations; unsuitable for cultivation; limited to grazing, forest, wildlife habitat</b>	4,800	1%
	<b>8 – miscellaneous areas; limited to recreation, wildlife habitat, water supply</b>	1,900	0%
	<b>Total Croplands &amp; Pasturelands</b>	<b>619,400</b>	<b>-</b>

## Assessment of Waters

Section 303(d) of the Clean Water Act states that water bodies with impaired use(s) must be placed on a state's impaired waters list. A water body is "Impaired" or polluted when it fails to meet one or more of the Federal Clean Water Act's water quality standards. Federal Standards exist for basic pollutants such as sediment, bacteria, nutrients, and mercury. The Clean Water Act requires States to identify and restore impaired waters. The primary tool for addressing impaired waters is a pollution reduction plan called a Total Maximum Daily Load, or TMDL.



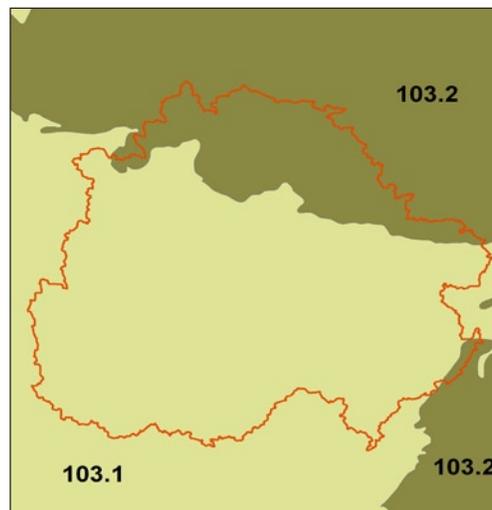
Listed Water	Impairment	Affected Use
Le Sueur River: Maple River to Blue Earth River	Acetochlor, Mercury, PCBs, Turbidity	Aquatic Consumption, Aquatic Life, Aquatic Recreation
Little Beauford Ditch: Headwaters to Cobb River	Acetochlor, Mercury, PCBs, Turbidity	Aquatic Consumption, Aquatic Life, Aquatic Recreation
Little Cobb River: Bull Run Creek to Cobb River	Fish IBI, Mercury, Turbidity	Aquatic Consumption, Aquatic Life, Aquatic Recreation
Le Sueur River: CD 6 to Cobb River	Turbidity	Aquatic Life
Rice Creek: Headwaters to Maple River	Fish IBI	Aquatic Life
Maple River: Rice Cr to Le Sueur River	Turbidity	Aquatic Life, Aquatic Recreation
Cobb River: T107 R26W S30, west line to Le Sueur River	Turbidity	Aquatic Life
Cobb River: T104 R23W S34W, south line to Little Cobb River	Fish IBI	Aquatic Life
Madison	Mercury	Aquatic Consumption
Bass	Mercury	Aquatic Consumption
Madison	Mercury	Aquatic Consumption
Lura	Mercury, Nutrients/Eutrophication	Aquatic Consumption, Aquatic Recreation
Elysian	Mercury, Nutrients/Eutrophication	Aquatic Recreation

## Common Resource Areas

The Le Sueur River Watershed encompasses two common resource areas, CRAs 103.1 and 103.2 <sup>/9</sup>

**103.1 Iowa and Minnesota Till Prairies:** Primarily loamy glacial till soils with scattered lacustrine areas, potholes, outwash and flood plains. Nearly level to gently undulating with relatively short slopes. Most of the wet soils have been artificially drained to maximize crop production. Primary land use is cropland. Corn, soybeans, sugar beets, peas and sweet corn are the major crops. Native vegetation was dominantly tall grass prairie. Resource concerns are water and wind erosion, nutrient management, and water quality.

**103.2 Iowa and Minnesota Rolling Prairie/Forest Moraines:** Primarily loamy glacial till soils with some potholes, outwash and flood plains. Gently undulating to rolling with relatively short, complex slopes. Organic soils occur in the larger basins. Primary land use is cropland. Corn, soybeans, and hay are the major crops. Native vegetation was dominantly mixed tall grass prairie and deciduous trees. Resource concerns are water and wind erosion, nutrient management, water quality and wildlife habitat management.



## Geology / Soils <sup>/10</sup>

The oldest and deepest rocks in the watershed are Precambrian in age. Found primarily in the western third of the watershed, these hard, relatively impermeable, crystalline rocks are of igneous and metamorphic origins. Overlying the Precambrian rocks to the west and comprising the primary bedrock in a west to east gradient through the remaining two thirds of the watershed are Cambrian and then Ordovician sedimentary rocks. Pleistocene glacial deposits cover almost the entire watershed and are predominantly till, an unstratified mixture of clay, silt, sand, and gravel. Within the center of the watershed, a flatlying, thin clay deposit is present on top of the till, a remnant lake bed of "glacial" Lake Minnesota.

Overall, geomorphology of the watershed can be described as nearly level to gently rolling surficial till deposits with almost imperceptible slopes. The surface relief descends from three directions, converging from the east, west, and south toward the central portion of the watershed. The western half of the watershed lies primarily within the Blue Earth Till Plain. Landscapes within this till plain are characterized as being a complex mixture of gently sloping (2-6%) well drained loamy soils and nearly level (0-2%) poorly drained loamy soils. Artificial drainage to remove ponded water from flat and depressional areas is extensive. Water erosion potential is moderate on much of lands (46%) within this geomorphic setting.

Geomorphology of the eastern half of the watershed is a complex mixture of glacial lake plains, till plains, and moraines. Sections of the "glacial" Minnesota Lake Plain are located in the eastern half of the Blue Earth River Watershed (within the western half of the Le Sueur River Subwatershed and the southeastern corner of the Watonwan River subwatershed). Landscapes within the lake plain are characterized as nearly level with poorly drained or very poorly drained clayey or silty clay soils. Subsurface and surface tiling are extensively used in this region of the watershed, but internal drainage remains poor. The majority of lands within this geomorphic setting are not bordered by streams, lakes or drainage ditches. Roughly 58% of these lands have a low water erosion potential.

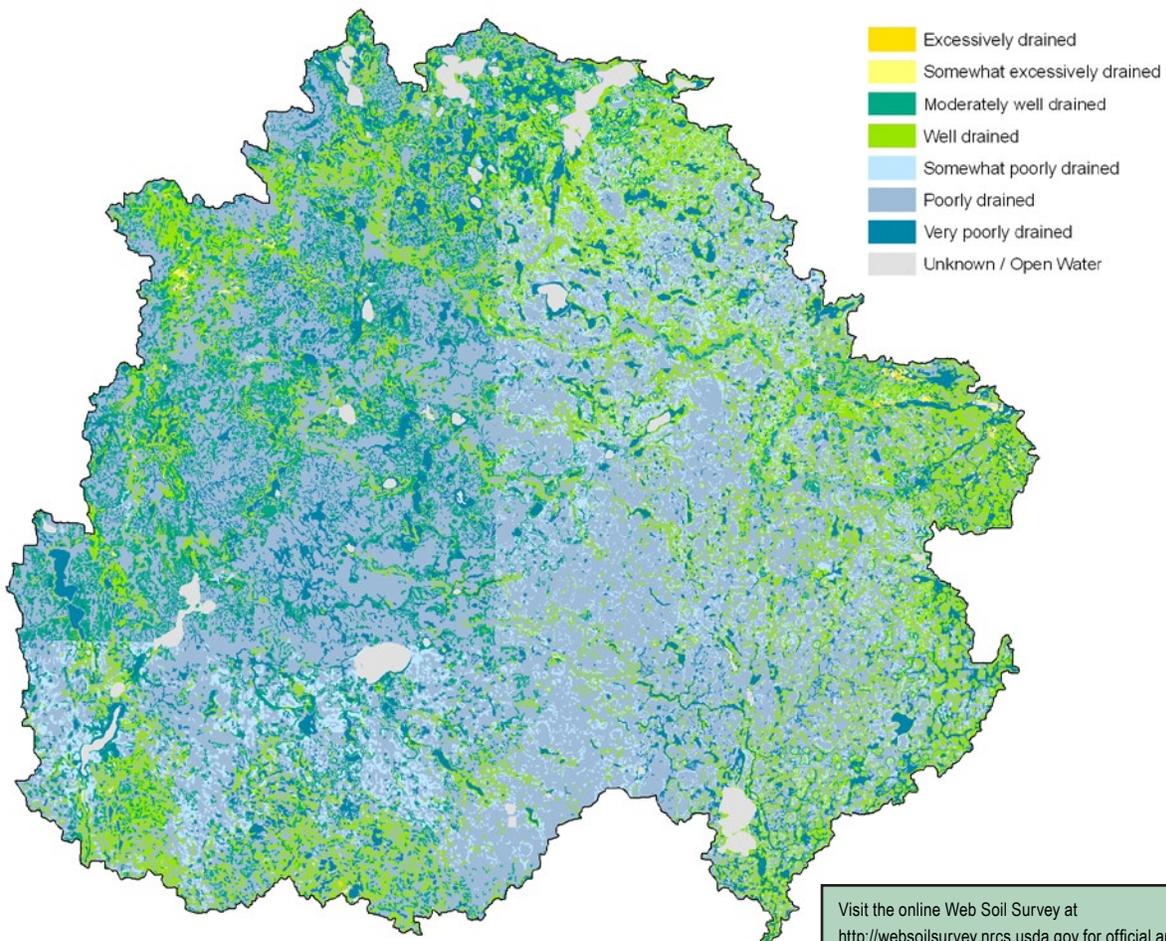
The western, southern and eastern boundaries of the watershed are end moraines formed by Pleistocene glaciers. Various ground moraines are also contained in the eastern half of the watershed. In general, these morainal complexes exhibit a undulating to hilly landscape with slopes ranging from 2-12%. Approximately one fourth of these lands are adjacent to streams and ditches, thus creating a moderate potential for sediment delivery to streams. Soils are predominantly loamy in texture. The majority of agricultural lands within the watershed's morainal complexes are moderately steep and well drained, although, approx. 25% of these tilled lands are nearly level, poorly drained, requiring tile drainage. Fifty percent of the cropped lands within this geomorphic setting have a high potential for water erosion.

Visit the online Web Soil Survey at
   
<http://websoilsurvey.nrcs.usda.gov> for official and
   
 current USDA soil information as viewable maps and
   
 tables. Visit the Soil Data Mart at [soildatamart.usda.gov](http://soildatamart.usda.gov)
  
 download SSURGO certified soil tabular /spatial data.

## Drainage Classification

Drainage class (natural) refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil.

Seven classes of natural soil drainage are recognized—excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the “Soil Survey Manual.”



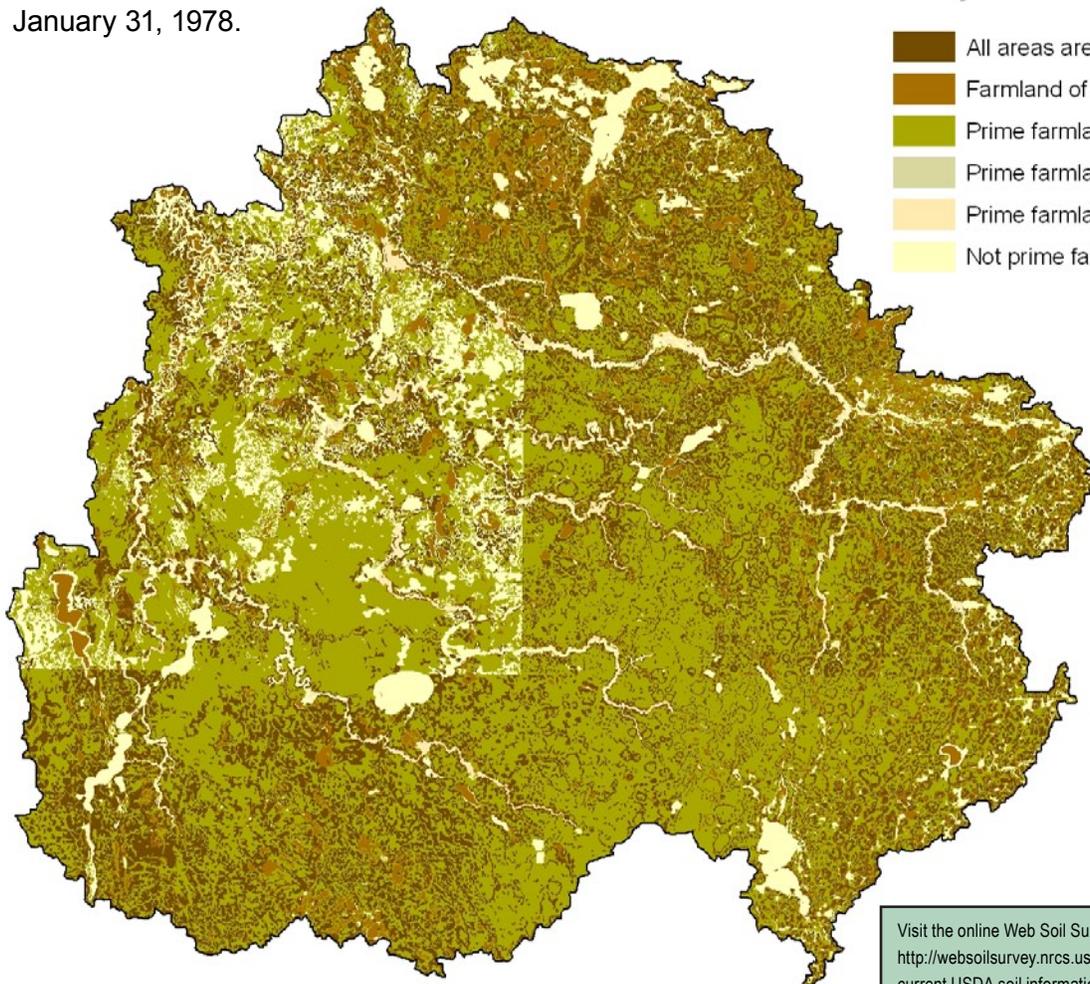
Visit the online Web Soil Survey at <http://websoilsurvey.nrcs.usda.gov> for official and current USDA soil information as viewable maps and tables. Visit the Soil Data Mart at <http://soildatamart.usda.gov> to download SSURGO certified soil tabular and spatial data.

## Farmland Classification

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland.

Farmland classification identifies the location and extent of the most suitable land for producing food, feed, fiber, forage, and oilseed crops.

NRCS policy and procedures on prime and unique farmlands are published in the Federal Register, Vol. 43, No 21, January 31, 1978.



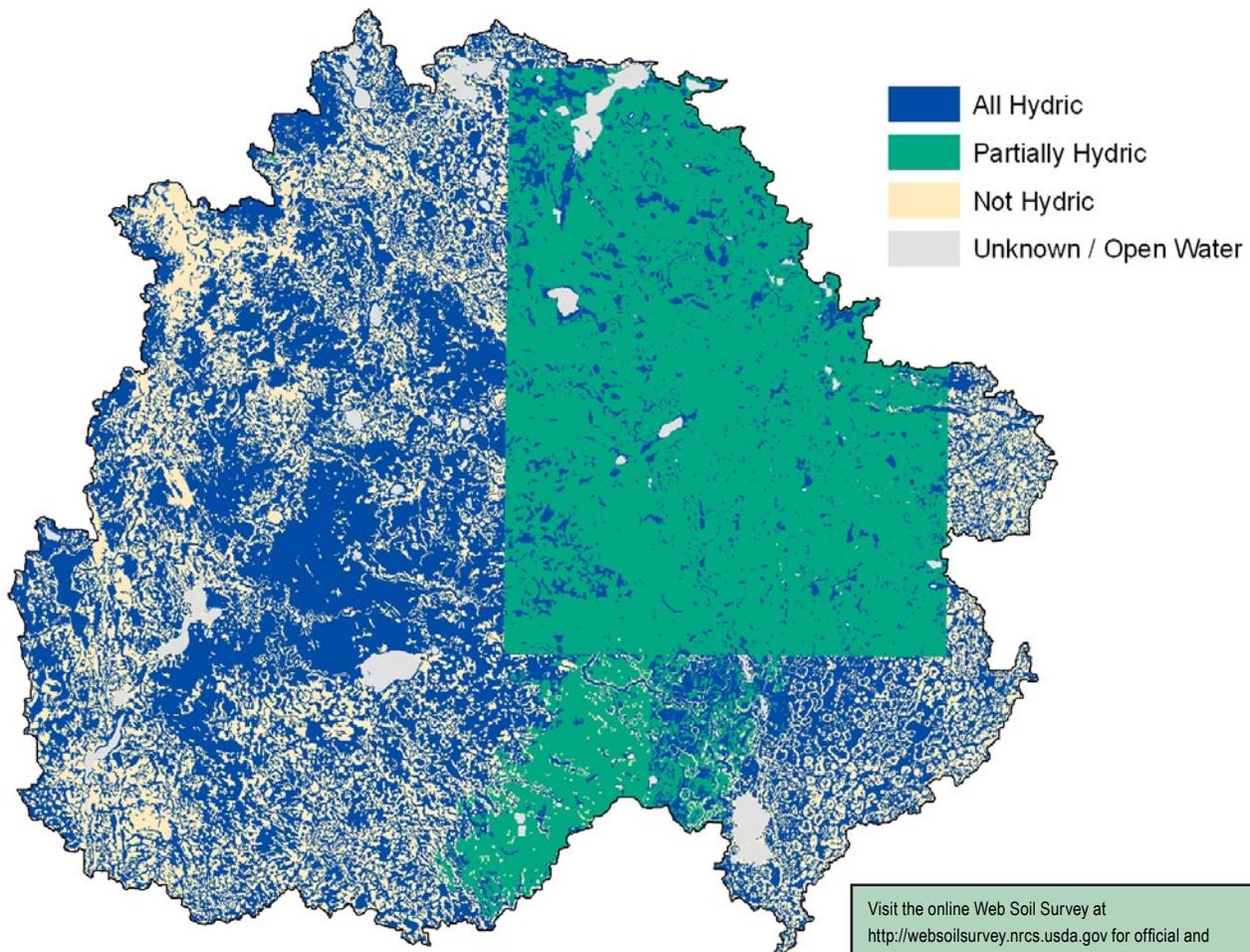
-  All areas are prime farmland
-  Farmland of statewide importance
-  Prime farmland if drained
-  Prime farmland if drained and protected
-  Prime farmland if protected from flooding
-  Not prime farmland

Visit the online Web Soil Survey at <http://websoilsurvey.nrcs.usda.gov> for official and current USDA soil information as viewable maps and tables. Visit the Soil Data Mart at <http://soildatamart.usda.gov> to download SSURGO certified soil tabular and spatial data.

## Hydric Soils

This rating provides an indication of the proportion of the map unit that meets criteria for hydric soils. Map units that are dominantly made up of hydric soils may have small areas, or inclusions of nonhydric soils in the higher positions on the landform. Map units of dominantly non-hydric soils may therefore have inclusions of hydric soils in the lower positions on the landform.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as “soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part” (Federal Register 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

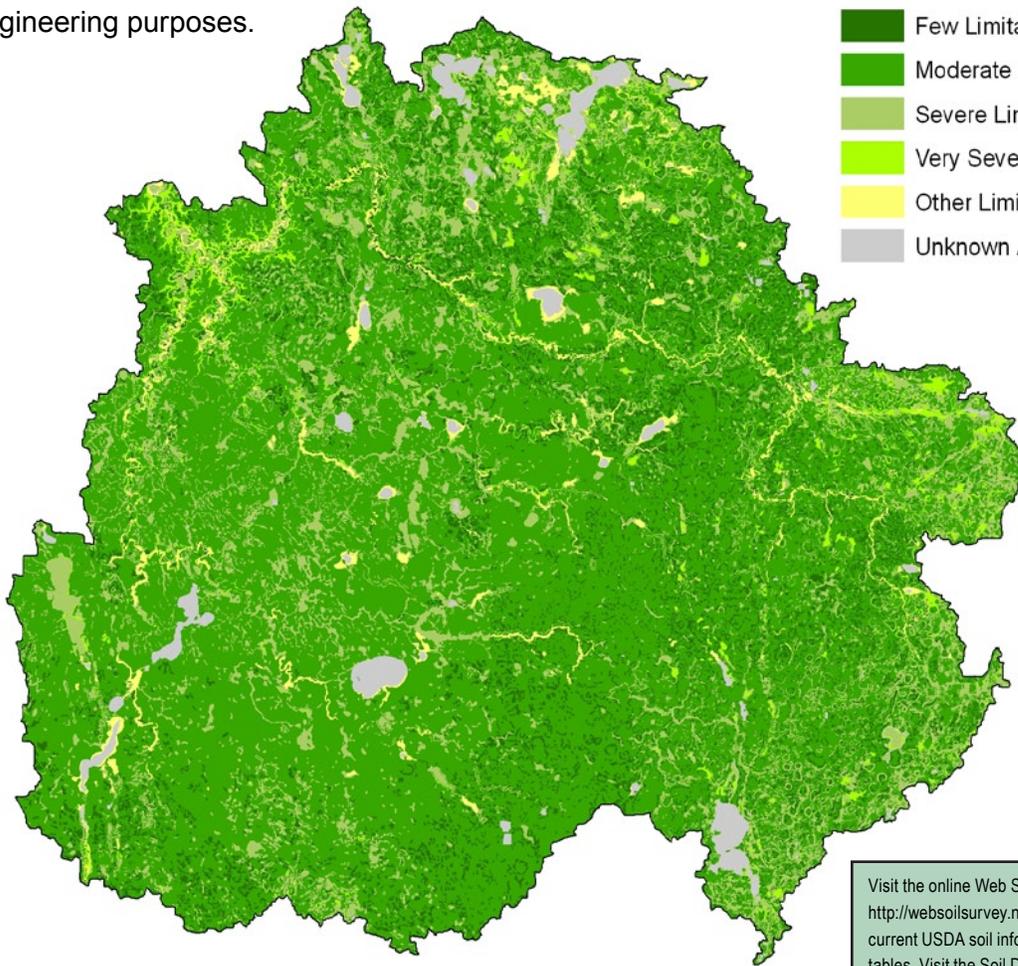


Visit the online Web Soil Survey at
   
<http://websoilsurvey.nrcs.usda.gov> for official and
   
 current USDA soil information as viewable maps and
   
 tables. Visit the Soil Data Mart at
   
<http://soildatamart.usda.gov> to download SSURGO
   
 certified soil tabular and spatial data.

## Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management.

The criteria used in grouping the soils does not include major and generally expensive land forming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.



-  Few Limitations
-  Moderate Limitations
-  Severe Limitations
-  Very Severe Limitations
-  Other Limitations
-  Unknown / Open Water

Visit the online Web Soil Survey at <http://websoilsurvey.nrcs.usda.gov> for official and current USDA soil information as viewable maps and tables. Visit the Soil Data Mart at <http://soildatamart.usda.gov> to download SSURGO certified soil tabular and spatial data.

## Performance Results System Data

PRS Performance Measures	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	TOTALS
Total Conservation Systems Planned (acres)	4,067	7,747	661	20,830	19,500	N/A	16,230	22,573	17,027	108,635
Total Conservation Systems Applied (acres)	811	7,373	659	13,647	13,647	N/A	19,763	27,960	31,326	115,186
<b>Conservation Practices</b>										
Total Waste Management (313) (numbers)	0	0	0	1	2	0	0	0	0	3
Riparian Forest Buffers (391) (acres)	3	34	28	605	466	95	9	43	148	1,431
Erosion Control Total Soil Saved (tons/year)	0	19,568	8,828	50,158	49,858	N/A	N/A	N/A	N/A	128,412
Total Nutrient Management (590) (Acres)	0	1,978	0	1,924	1,805	1,332	2,544	2,544	5,964	18,091
Pest Management Systems Applied (595A) (Acres)	0	0	0	818	1,198	881	2,122	565	1,806	7,390
Prescribed Grazing 528a (acres)	0	562	0	20	40	0	0	0	0	622
Tree & Shrub Establishment (612) (acres)	1	106	100	425	425	104	73	45	59	1,338
Residue Management (329A-C) (acres)	11	4,877	977	7,273	3,238	9,903	9,903	21,975	16,014	74,171
Total Wildlife Habitat (644 - 645) (acres)	138	1,138	1,892	4,972	3,181	478	4,972	8,069	7,442	32,282
Total Wetlands Created, Restored, or Enhanced (acres)	47	438	129	1,369	1,046	601	556	473	788	5,447
<b>Acres enrolled in Farmbill Programs</b>										
Conservation Reserve Program	811	6,610	4,480	9,209	6,129	N/A	828	2,350	4,347	34,764
Wetlands Reserve Program	805	4,531	696	4	48	N/A	406	48	298	6,836
Environmental Quality Incentives Program	805	4,531	807	3,605	6,960	N/A	17,082	22,558	23,085	79,433
Wildlife Habitat Incentive Program	0	1,603	696	0	0	N/A	58	79	188	2,624
Farmland Protection Program	0	659	659	0	0	N/A	0	0	0	1,318

**THREATENED AND ENDANGERED SPECIES**<sup>/14</sup>

NRCS assists in the conservation of threatened and endangered species and avoids or prevents activities detrimental to such species.

NRCS' concern for these species includes the species listed by the Secretary of the Interior (as published in the Federal Register) and species designated by state agencies. The following is a list of threatened, endangered, and candidate species as well as species of special concern that occur in the subbasin.



Scientific Name	Common Name	Type
<i>Actinonaias ligamentina</i>	Mucket	Zoological
<i>Alasmidonta marginata</i>	Elktoe	Zoological
<i>Arnoglossum plantagineum</i>	Tuberous Indian-plantain	Botanical
<i>Asclepias sullivantii</i>	Sullivant's Milkweed	Botanical
<i>Cypripedium candidum</i>	Small White Lady's-slipper	Botanical
<i>Desmanthus illinoensis</i>	Prairie Mimosa	Botanical
<i>Emydoidea blandingii</i>	Blanding's Turtle	Zoological
<i>Eryngium yuccifolium</i>	Rattlesnake-master	Botanical
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Zoological
<i>Ligumia recta</i>	Black Sandshell	Zoological
<i>Notropis anogenus</i>	Pugnose Shiner	Zoological
<i>Pleurobema coccineum</i>	Round Pigtoe	Zoological
<i>Polyodon spathula</i>	Paddlefish	Zoological
<i>Spilogale putorius</i>	Eastern Spotted Skunk	Zoological
<i>Trillium nivale</i>	Snow Trillium	Botanical
<i>Valeriana edulis</i> ssp. <i>ciliata</i>	Valerian	Botanical

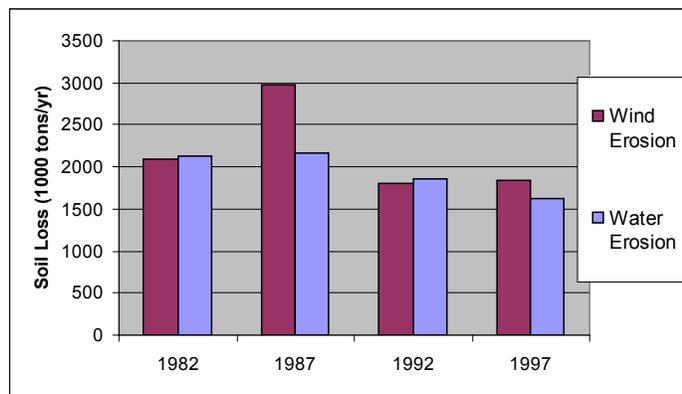
## RESOURCE CONCERNS

County Soil and Water Conservation Districts in the watershed have identified the following resource concerns as top priorities for conservation and cost sharing efforts:

- **Sediment and Erosion Control.** Excessive amounts of suspended solids from cropland, urban lands, streambanks and streambeds is a primary threat to area waters. Working hand-in-hand with stormwater pollution and prevention plans and nutrient management plans, counties in the watershed seek to retain water on the landscape to reduce flooding and subsequent soil erosion, and improve water resources.
- **Stormwater Management.** Local districts recognize that stormwater runoff volume from impervious surfaces will likely increase as development of the watershed continues. New developments located adjacent to existing cities, near lakeshore or simply placed in a rural setting need to be tightly regulated to prevent the associated nutrient and sediment runoff impacts to our water resources.
- **Drinking Water and Source Water Protection.** Parts of the region are particularly susceptible to groundwater contamination. Ease of infiltration, aging septic systems, abandoned wells and historical tiling practices threaten public drinking water supplies. Districts promote public health, economic development and community infrastructure by insuring a potable drinking water supply for all residents.
- **Feedlot and Animal Waste Management.** Managing farms to minimize excess nutrients, pathogens, and odors released into the environment is important to the health of surface and ground water. Agricultural operations need to adequately maintain cropping systems to reduce nonpoint pollution, while feedlot operations need to contain their manure storage areas. Erosion and sedimentation from these operations needs to be closely monitored to reduce the levels of nutrients entering our surface water resources.
- **Nutrient Management.** Excessive amounts of nutrients, namely phosphorus and nitrogen, contaminate ground and surface waters and create nuisance algae presence in area waters. Major contributors are cropland, urban grasses, municipal wastewater, aging or non-compliant septic systems, and internal cycling.
- **Wetland Management.** Due to the historical draining of much of the areas wetlands and homgenic agricultural practices, priority is given to both wetland preservation and restoration. Wetlands that have been filled and drained retain their characteristic soil and hydrology, often allowing their natural functions to be reclaimed. Restoration is a complex process requiring planning, implementation, monitoring, and management.
- **Drainage Management.** The Area's agricultural dominance, coupled with vast surface water resources has resulted in a "tug of war" between the need for cropping systems and desire for suitable water recreation. To enhance crop production, tiling systems have been improved wetlands have been drained, causing drainage systems to be inundated with increased volumes of nutrient rich water. These fast flowing systems need to be addressed now - priority issues include potential storage areas, wetland restoration and effective management of the current drainage system program.

### NRI Soil Loss Estimates<sup>13</sup>

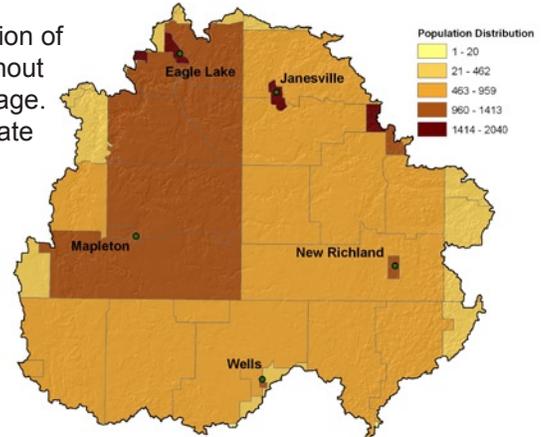
- NRI estimates for sheet and rill erosion by water on the cropland and pastureland **decreased** by approximately 493,900 tons (23%) of soil between 1982 and 1997.
- NRI estimates indicate wind erosion rates **decreased** by 265,400 tons (13%) between 1982 and 1997.



## Socioeconomic and Agricultural Data (Relevant)

Estimations for the Le Sueur subbasin indicate a current population of approximately 34,344 people. Median household income throughout the district is \$42,629 annually, roughly 92% of the national average. Unemployment figures for the basin indicate an unemployment rate of 4.3 percent, and approximately 8% of the residents in the watershed are living below the national poverty level.

Assessment estimates indicate 1,803 farms in the watershed. Approximately thirty nine percent of the operations are less than 180 acres in size, forty one percent are from 180 to 1000 acres in size, and the remaining farms are greater than 1000 acres. Of the 1,720 operators in the basin, seventy three percent are full time producers not reliant on off-farm income.



<b>(MN) HUC# 7020011</b>		<b>Total Acres:</b>	<b>706,252</b>
<b>Population Data*</b>	Watershed Population	34,344	
	Unemployment Rate	4.3%	
	Median Household Income	42,629	
	% below poverty level	8%	
	Median Value of Home	88,033	
<b>Farms</b>	# of Farms	1,803	
	# of Operators	1,700	<b>Percent</b>
	# of Full Time Operators	1,245	73%
	# of Part Time Operators	455	27%
	<b>Total Crop/Pasturelands:</b>	<b>561,453</b>	<b>79.5%</b>
<b>Farm Size</b>	1 to 49 Acres	450	27%
	50 to 179 Acres	367	22%
	180 to 499 Acres	422	26%
	500 to 999 Acres	251	15%
	1,000 Acres or more	153	9%
	<b>Average Farm Size</b>	<b>109</b>	
<b>Livestock &amp; Poultry</b>	Cattle - Beef	2,711	0.2%
	Cattle - Dairy	4,219	0.3%
	Chicken	4,613	0.3%
	Swine	448,979	33%
	Turkey	209,765	16%
	Other	675,667	50%
	<b>Animal Count Total:</b>	<b>1,345,954</b>	
	<b>Total Permitted AFOs:</b>	<b>767</b>	
<b>Chemicals (Acres Applied)</b>	Insecticides	34,449	
	Herbicides	344,388	
	Wormicides	819	
	Fruiticides	1,878	
	<b>Total Acres Treated</b>	<b>381,534</b>	
	<b>% State Chemical Totals</b>	<b>2.7%</b>	

\* Adjusted by percent of HUC in the county or by percent of block group area in the HUC, depending on the level of data available

## Watershed Projects, Plans and Monitoring

---

- **Bass Lake - Lake Assessment Program**  
[Minnesota Pollution Control Agency](#)
- **Beauford Demonstration Watershed**  
[Minnesota Pollution Control Agency](#)
- **Maple River Watershed Project CWP**  
[Blue Earth SWCD / MPCA](#)
- **Greater Blue Earth River Watershed Initiative**  
[3 Rivers Resource Conservation & Dev. Council](#)
- **Greater Blue Earth Targeted Watersheds Grant**  
[US Environmental Protection Agency](#)
- **Le Sueur River Implementation Framework**  
[South Central MN Co. Water Planning Project](#)
- **Lura Lake - Lake Assessment Program**  
[Minnesota Pollution Control Agency](#)
- **Minnesota River Turbidity TMDL Work Plan**  
[Minnesota Pollution Control Agency](#)
- **MRAP Biological & Toxicological Assessment**  
[Minnesota Pollution Control Agency](#)
- **MRAP Land Use Assessment Levels III, IV**  
[Minnesota Pollution Control Agency](#)
- **Quad Lakes Improvement Project**  
[Faribault Soil and Water Conservation District](#)
- **South Central MN Comp. Water Planning Project**  
[Minnesota River Basin Joint Powers Board](#)

\* Have a watershed project you'd like to see included? Submit suggestions online @ <http://www.mn.nrcs.usda.gov/technical/rwa/>

## Conservation Districts, Organizations & Partners

---

- **Area II Minnesota River Basin Projects, Inc**  
1400 E Lyon Street, Bx 267 Marshall, MN 56258  
Phone 507-537-6369 Fax 507-537-6368
- **Blue Earth River Team (BERT), Mankato DNR**  
1230 South Victory Dr Mankato, MN 56001  
Phone 507-389-6257
- **Blue Earth Soil & Water Conservation District**  
1160 Victory Dr #3 Mankato, MN 56001-5307  
Phone 507-345-4744
- **Blue Earth River Basin Initiative (BERBI)**  
426 Winnebago Ave, #100 Fairmont, MN 56031  
Phone 507-238-5449
- **Faribault Soil & Water Conservation District**  
415 South Grove Street #8, Blue Earth MN 56013  
Phone 507-526-2388
- **Freeborn Soil & Water Conservation District**  
1400 W Main St Albert Lea, MN 56007  
Phone 507-373-5607
- **Region 9 Regional Development Commission**  
410 E Jackson Mankato, MN 56001  
Phone 507-387-5643 or 800-450-5643
- **Hiawatha Valley RC&D**  
1485 Industrial Av NW #104 Rochester, MN 55901  
Phone 507-281-1959
- **Le Sueur Soil and Water Conservation District**  
145 E Minnesota Street LeCenter, MN 56057  
Phone 507-357-4879
- **Le Sueur River Watershed Team**  
56341 134th St Mapleton, MN 56065  
Phone 507-389-8381
- **Minnesota River Basin Joint Powers Board**  
600 E. 4th St Chaska, MN 55318-2108  
Phone 952-361-6590 Fax 952-361-6594
- **Prairie Country RC&D**  
1005 High Avenue NE Willmar, MN 56201-4817  
Phone 320-231-0008 Fax 320-235-8151
- **South Central Comprehensive Water Plan**  
Joint Powers Board P.O. Box 248, New Ulm, MN 56073  
Phone 507-233-6642
- **Steele Soil and Water Conservation District**  
235 Cedardale Dr SE Owatonna, MN 55060  
Phone 507-451-6730
- **Three Rivers Resource and Development Council**  
1160 Victory Drive Suite 4 Mankato, MN 56001  
Phone 507-345-7418 ext. 5
- **Waseca Soil & Water Conservation District**  
212 15th Avenue NE, Suite 5 Waseca, MN 56093  
Phone 507-835-7144

---

## Footnotes / Bibliography

---

1. Ownership Layer – Source: MN Stewardship Data: Minnesota Department of Natural Resources, Section of Wildlife, BRW, Inc, 2008. This is the complete GAP Stewardship database containing land ownership information for the entire state of Minnesota. Date of source material is variable and ranges from 1976 to 2007, although a date range of 1983 to 1985 predominates. Land interest is expressed only when some organization owns or administers more than 50% of a forty except where DNR could create sub-forty accuracy polygons.
2. National Land Cover Dataset (NLCD) - Originator: U.S. Geological Survey (USGS); Publication date: 20010631; Title: Minnesota Land Cover Data Set, Edition: 1; Geospatial data presentation form: Raster digital data; Publisher: U.S. Geological Survey, Sioux Falls, SD, USA.
3. Ownership layer classes grouped to calculate Public ownership vs. Private and Tribal ownership by Minnesota NRCS Rapid Watershed Assessment Staff. Land cover / Land use data was then extracted from the National Landcover Dataset Classification System and related to ownership class polygons.
4. U.S. Geological Survey National Hydrography Dataset (NHD) 1:24,000-scale Digital Line Graph (DLG) high resolution hydrography data, integrated with reach-related information from the U.S. Environmental Protection Agency Reach File Version 3.0 (RF3). The Hydro 24k layer was compared to MPCA's 303(d) data to derive percentage of listed waters.
5. Land Cover / Land Use / Hydro 24k Buffer. Using the 24k Hydrology dataset, All streams within HUC were spatially buffered to a distance of 100 ft. National Landcover Dataset attributes were extracted for the spatial buffer to demonstrate the vegetation and landuse in vulnerable areas adjacent to waterways.
6. Land Capability Class. ESTIMATES FROM THE 1997 NRI DATABASE (REVISED DECEMBER 2000) REPLACE ALL PREVIOUS REPORTS AND ESTIMATES. Comparisons made using data published for the 1982, 1987, or 1992 NRI may produce erroneous results. This is because of changes in statistical estimation protocols and because all data collected prior to 1997 were simultaneously reviewed (edited) as 1997 NRI data were collected. All definitions are available in the glossary. In addition, this December 2000 revision of the 1997 NRI data updates information released in December 1999 and corrects a computer error discovered in March 2000. For more information: <http://www.nrcs.usda.gov/technical/NRI/>
7. 1997 NRI Irrigated Land Estimates. Irrigated land: Land that shows evidence of being irrigated during the year of the inventory or during two or more years out of the last four years. Water is supplied to crops by ditches, pipes, or other conduits. Water spreading is not considered irrigation; it is recorded as a conservation practice. [NRI-97] For more information: <http://www.nrcs.usda.gov/technical/NRI/>
8. 303(d) Stream data. Minnesota's Final Impaired Waters (per Section 303(d) Clean Water Act), 2009. Data obtained from Minnesota Pollution Control Agency (MPCA). The Minnesota Pollution Control Agency (MPCA) helps protect state water by monitoring quality, setting standards and controlling inputs through the development of TMDL plans. <http://www.pca.state.mn.us/water/tmdl/index.html#maps>.

## Footnotes / Bibliography (continued)

---

9. National Coordinated Common Resource Area (CRA) Geographic Database. A Common Resource Area (CRA) map delineation is defined as a geographical area where resource concerns, problems, or treatment needs are similar. It is considered a subdivision of an existing Major Land Resource Area (MLRA) map delineation or polygon. Landscape conditions, soil, climate, human considerations, and other natural resource information are used to determine the geographic boundaries of a Common Resource Area
10. Soil Survey Geographic Database (SSURGO) Tabular and spatial data obtained from NRCS Soil Data Mart at <http://soildatamart.nrcs.gov>. Publication dates vary by county. Component and layer tables were linked to the spatial data via SDV 5.1 and ARCGIS 9.1 to derive the soil classifications presented in these examples. Highly Erodible Land Classification Data obtained from USDA/NRCS EFOTG Section II, County Soil Data. HEL classifications were appended to SSURGO spatial data via an ARCEdit session. Addendum and publication dates vary by county.
11. Lands removed from production through farm bill programs. County enrollment derived from the following: CRP Acres: [www.fsa.usda.gov/crpstorpt/07Approved/r1sumyr/mn.htm](http://www.fsa.usda.gov/crpstorpt/07Approved/r1sumyr/mn.htm) (7/30/07). CREP Acres: <http://www.bwsr.state.mn.us/easements/crep/easementssummary.html> (7/31/08). WRP Acres: NRCS (8/16/08). Data were obtained by county and adjusted by percent of HUC in the county.
12. Socioeconomic and Agricultural Census Data were taken from the U.S. Population Census, 2000 and 2002 Agricultural Census and adjusted by percent of HUC in the county or by percent of zip code area in the HUC, depending on the level of data available. Data were also taken from MPCA AFO/CAFO counts provided by county for 2005.
13. 1997 NRI Estimates for sheet and rill erosion (WEQ & USLE). The NRI estimates sheet and rill erosion together using the Universal Soil Loss Equation (USLE). The Revised Universal Soil Loss Equation (RUSLE) was not used in the 1997 NRI. RUSLE was not available for previous inventories, therefore the use of USLE was continued to preserve the trending capacity of the NRI database. Wind erosion is estimated using the Wind Erosion Equation (WEQ). For further information visit <http://www.mn.nrcs.usda.gov/technical/nri/findings/erosion.htm>
14. Federally listed endangered and threatened species counts obtained from NRCS Field Office Technical Guide, Section II, Threatened and Endangered List. <http://www.nrcs.usda.gov/Technical/efotg/>. Where listed, Essential fish habitat as established by Magnuson-Stevens Fishery Conservation and Management Act, Public Law 94-265, as amended through October 11, 1996 <http://www.nmfs.noaa.gov/sfa/magact/>
15. Watershed Projects, Plans, Monitoring. Natural Resources Conservation Service, Watershed Projects Planned and Authorized, <http://www.nrcs.usda.gov/programs/watershed/Purpose>. Additional Information on listed individual projects can be obtained from the noted parties.