

**Rapid Watershed Assessment
Resource Profile
Hawk-Yellow Medicine (MN) HUC: 7020004**



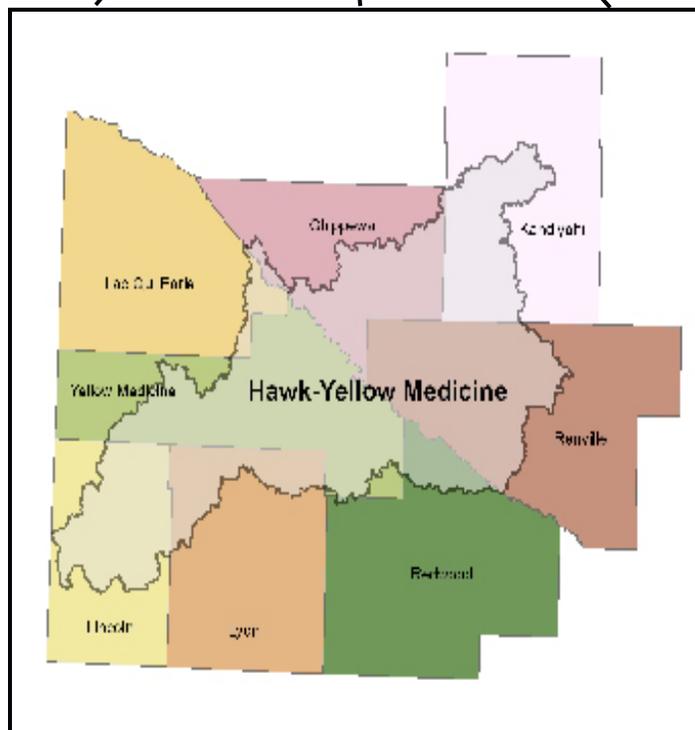
Rapid watershed assessments provide initial estimates of where conservation investments would best address the concerns of landowners, conservation districts, and other community organizations and stakeholders. These assessments help land-owners and local leaders set priorities and determine the best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

Introduction

The Hawk-Yellow Medicine 8-Digit Hydrologic Unit Code (HUC) subbasin is located in the Prairie Parkland Ecological Province of Southwestern Minnesota. This primarily agricultural watershed is 1,327,559 acres in size. Available data indicates over ninety six percent of the land within the subbasin is privately owned.

Agricultural census estimates show 2,680 farms in the subbasin. Approximately 25 percent of the operations are less than 180 acres in size, over fifty percent are from 180 to 1000 acres, and the remaining farms are greater than 1000 acres in size. Most of the producers are full time operators and do not rely on off-farm income.

The main resource concerns on the cropland are wind and water erosion and flooding. Associated with the cropland runoff are increased pollutant loadings to surface waters. Additional resource concerns include surface and groundwater quality (mercury, turbidity and fecal coliform), agricultural waste management, sedimentation and declining wildlife habitat.



County Totals:

	Acres in HUC	% HUC Acres
Chippewa	168,736.1	12.7
Kandiyohi	163,693.8	12.3
Lac Qui Parle	27,757.1	2.1
Lincoln	169,383.8	12.8
Lyon	104,063.3	7.8
Redwood	47,372.4	3.6
Renville	291,182.0	21.9
Yellow Medicine	355,399.3	26.8
Total acres:	1,327,559	100

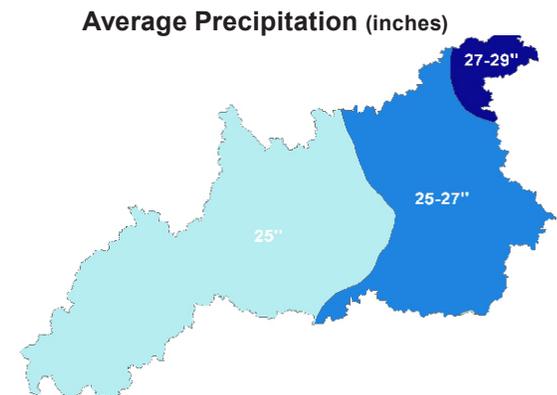
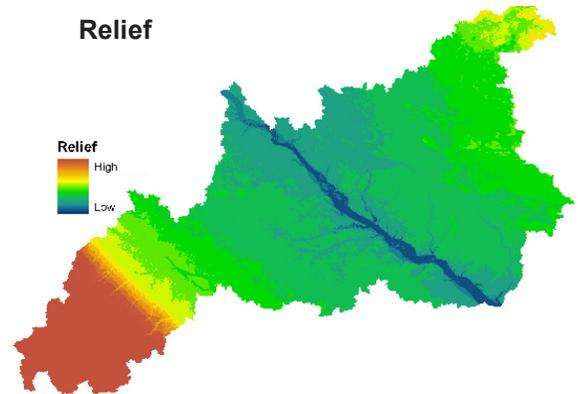
Physical Description

This once glaciated area is part of the Prairie Pothole Region. Soils in this HUC are generally clay and sand, with considerable deposits of glacial till and outwash. Average elevation in the watershed is 1984 feet above sea level, with the highest values being in the Southwest and extreme Northeast portions of the watershed, while the lowest are found across the central regions, near the Minnesota River channel.

Precipitation in the watershed ranges from 25 to 29 inches annually. Most lands within this watershed are not highly erodible, and are well to moderately well suited to agricultural uses. Predominate land uses are row crops (79%), followed by grass and pasture (13%), and forest (3%).

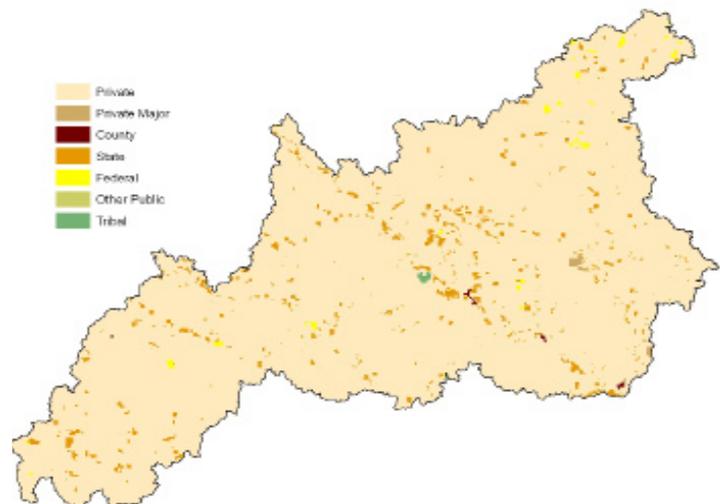
Land use within the Hawk Yellow Medicine watershed is primarily agricultural, accounting for approximately 81% of the available acres. Corn and soybeans are grown on approximately 82% of cropped lands; small grains, hay, and grasslands enrolled in the Conservation Reserve Program (CRP) make up the majority of the balance.

Development pressure is slight to moderate, with occasional farms being parceled out for recreation or country homes.



Ownership* ¹

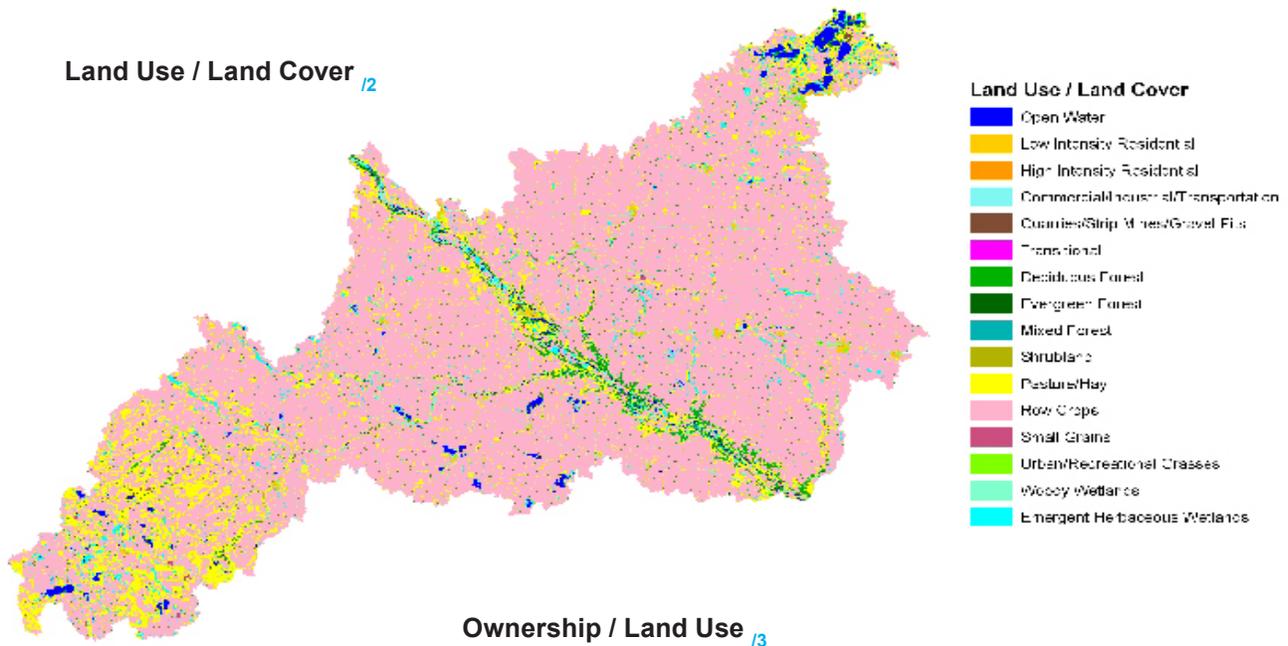
Ownership Type	Acres	% of HUC
Conservancy	0.00	0.00
County	1,012.80	0.08
Federal	5,300.69	0.40
Private Major	1,730.56	0.13
State-Misc.	39,115.31	2.95
Tribal	812.40	0.06
Private	1,279,509.30	96.38
Other Public	122.19	0.01
Ownership Totals:	1,327,559.00	100



* Ownership totals derived from 2007 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 Hawk-Yellow Medicine Watershed covers an area of 1,327,559 acres. Over ninety six percent of the land in the watershed is owned by private landholders (1,279,509.30 acres). The second largest ownership type is State, with just over 39,115 acres (2.95%), followed by Federal with approximately 5,300 acres (0.4%), Private-Major with 1,730 Acres (0.13%), and County with 1,012 Acres (0.08%). There are an additional 122 acres of miscellaneous public lands, and approximately 812 acres (0.06%) of Tribally owned or managed lands. Available data shows no existing Private Conservancy land holdings in the region. Land use by ownership type is represented in the table below.



Landcover/Use	Public		Private**		Tribal		Total Acres	Percent	
	Acres	Percent	Acres	Percent	Acres	Percent			
Forest	3,150.0	0.24	38,378.03	2.89	244.0	0.02	41772.00	3.15%	
Grain Crops	160.8	0.01	1,537.22	0.12	0.0	0.00	1698.00	0.13%	
Grass, etc	9,449.6	0.71	159,109.49	11.99	107.0	0.01	168666.00	12.70%	
Orchards	0.0	0.00	0.00	0.00	0.0	0.00	0.00	0.00%	
Row Crops	21,898.4	1.65	1,023,668.29	77.11	317.3	0.02	1045884.00	78.78%	
Shrub etc	88.9	0.01	1,639.88	0.12	9.2	0.00	1738.00	0.13%	
Wetlands	9,032.3	0.68	29,156.48	2.20	113.2	0.01	38302.00	2.89%	
Residential/Commercial	109.531	0.01	11,455.75	0.86	14.72	0.001	11580.00	0.87%	
Open Water*	--	--	--	--	--	--	17968.00	1.35%	
* ownership undetermined		** includes private-major							
Totals:	43,889.51	3.31%	1,264,945	95.28%	805.4	0.06%	1327559.00	100.00%	

Physical Description (continued)

			cu. ft./sec	
Stream Flow Data	USGS 05311000 YELLOW MEDICINE RIVER AT MONTEVIDEO, MN	2005-2006 Avg.	1,600.1	
		May – Sep 2006 Avg.	1,167.6	
Stream Data¹⁴ (*Percent of Total HUC Stream Miles)		ACRES/MILES	PERCENT	
	Total Miles – Major (100K Hydro GIS Layer)	2,655	---	
	Total Miles –303d/TMDL Listed Streams	299	11%*	
Riparian Land Cover/Land Use¹⁵ (Based on a 100-foot buffer on both sides of all streams in the 100K Hydro GIS Layer)	Dev/Barren	344.3	0.6	
	Fallow	0	0	
	Forest	5,285.1	8.5	
	Grain Crops	63.2	0.1	
	Grass/Pasture	15,179.1	24.3	
	Orchards/Vine	0	0	
	Row Crops	31,152.6	49.9	
	Shrub/Range	207.7	0.3	
	Water	4,303.9	6.9	
		Total Buffer Acres	62,421.3	---
Crop and Pastureland Land Capability Class¹⁶ (Croplands & Pasturelands Only) (1997 NRI Estimates for Non- Federal Lands Only)	1 – slight limitations	75,400	6.5%	
	2 – moderate limitations	823,700	71.4%	
	3 – severe limitations	183,200	15.9%	
	4 – very severe limitations	44,600	3.9%	
	5 – no erosion hazard, but other limitations	700	0.1%	
	6 – severe limitations; unsuitable for cultivation; limited to pasture, range, forest	11,600	1%	
	7 – very severe limitations; unsuitable for cultivation; limited to grazing, forest, wildlife habitat	15,000	1.3%	
	8 – miscellaneous areas; limited to recreation, wildlife habitat, water supply	0	0%	
		Total Crop & Pastureland	1,154,200	---
Irrigated Lands¹⁷ (1997 NRI Estimates for Non- Federal Lands Only)	TYPE OF LAND	ACRES	% of Irrigated Lands	% of HUC
	Cultivated Cropland	0	0%	0%
	Uncultivated Cropland	0	0%	0%
	Pastureland	0	0%	0%
	Total Irrigated Lands	0	0%	0%

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 the Minnesota Pollution Control Agency (MPCA) to identify and restore impaired waters.

Minnesota's impaired waters list, updated every two years, identifies assessed waters that do not meet water quality standards. The primary tool for addressing impaired waters is a pollution reduction plan called a Total Maximum Daily Load, or TMDL. After impaired use(s) have been identified, the TMDL process identifies all sources of each pollutant. The plan then determines how much each source must reduce its contribution in order to meet the applicable water quality standard. The Clean Water Act requires a completed TMDL for each water quality violation identified on a state's impaired waters list. Lakes or river reaches with multiple impairments require multiple TMDLs.

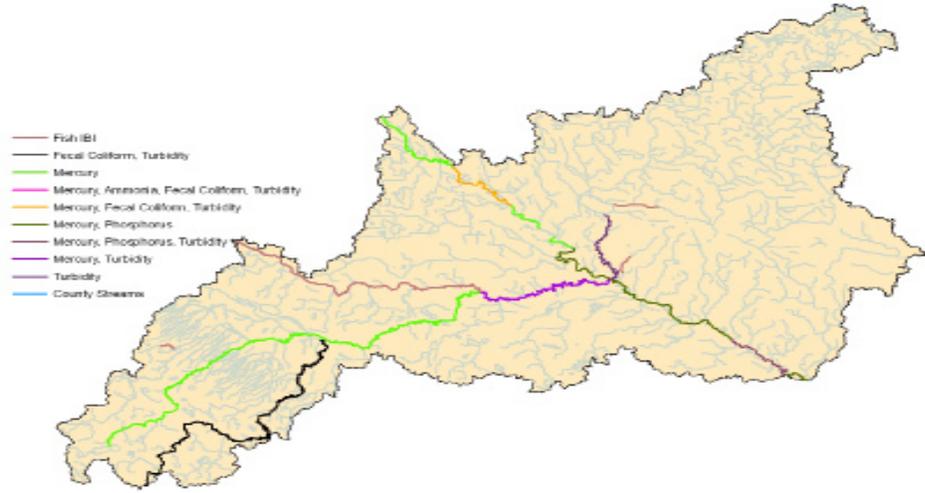
2006 Minnesota TMDL Listed Lakes - Hawk-Yellow Medicine



Listed Lake ^{/B}	Impairment	Affected Use
Henderson	Mercury	Aquatic Consumption
Eagle	Mercury	Aquatic Consumption
Long	Mercury, Excess nutrients	Aquatic Recreation and Aquatic Consumption
Perch	Mercury	Aquatic Consumption
Shaokotan	Mercury, Excess nutrients	Aquatic Recreation and Aquatic Consumption
Lady Slipper	Mercury	Aquatic Consumption

Assessment of Waters (continued)

2006 Minnesota TMDL Listed Streams - Hawk-Yellow Medicine



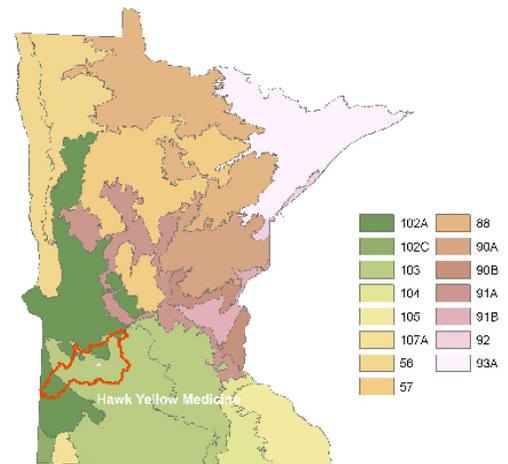
Listed Stream / Reach ¹⁸	Impairment	Affected Use
Minnesota River; Wood Lk Cr to Sacred Heart Cr	Mercury, Phosphorus	Aquatic Consumption
Minnesota River; Lac Qui Parle R to Chippewa R	Mercury	Aquatic Consumption
Redwood River; Ramsey Cr to Minnesota R	Mercury, Fecal Coliform, Turbidity	Aquatic Life, Aquatic Recreation, Aquatic Consumption
Chippewa River; Watson Sag Diversion to Minnesota R	Mercury, Ammonia, Fecal Coliform, Turbidity	Aquatic Life, Aquatic Recreation, Aquatic Consumption
Minnesota River; Chippewa R to Stony Run Cr	Mercury, Fecal Coliform, Turbidity	Aquatic Life, Aquatic Recreation, Aquatic Consumption
Yellow Medicine River; Spring Cr to Minnesota R	Mercury, Turbidity	Aquatic Life and Aquatic Consumption
Yellow Med River, South Branch; Headwaters to Yellow Med R	Fecal Coliform, Turbidity	Aquatic Life and Aquatic Recreation
Minnesota River; Wood Lk Cr to Sacred Heart Cr	Mercury, Phosphorus	Aquatic Consumption
Minnesota River; Lac Qui Parle R to Chippewa R	Mercury	Aquatic Consumption
Minnesota River; Hawk Cr to Wood Lk Cr	Mercury, Phosphorus	Aquatic Consumption
Minnesota River; Sacred Heart Cr to Timms Cr	Mercury, Phosphorus	Aquatic Consumption
Minnesota River; Timms Cr to Redwood R	Mercury, Phosphorus, Turbidity	Aquatic Life and Aquatic Consumption
Minnesota River; Redwood R to Beaver Cr	Mercury, Phosphorus	Aquatic Consumption
Yellow Medicine River; Headwaters to Mud Cr	Mercury	Aquatic Consumption
Yellow Medicine River; South Br Yellow Medicine R to Spring Cr	Mercury	Aquatic Consumption
Minnesota River; Granite Falls Dam to Minnesota Falls Dam	Mercury	Aquatic Consumption
Minnesota River; Minnesota Falls Dam to Hazel Cr	Mercury, Phosphorus	Aquatic Consumption
Minnesota River; Hazel Cr to Yellow Medicine R	Mercury, Phosphorus	Aquatic Consumption
Minnesota River; Yellow Medicine R to Hawk Cr	Mercury, Phosphorus	Aquatic Consumption
Minnesota River; Stony Run Cr to Palmer Cr	Mercury	Aquatic Consumption
Hawk Creek; Spring Cr to Minnesota R	Turbidity	Aquatic Life
Chetomba Creek; End Class 7 to Hawk Cr	Biologic Index - Fish	Aquatic Life
Spring Creek; Headwaters to Yellow Medicine R	Biologic Index - Fish	Aquatic Life
Yellow Medicine River; Mud Cr to South Br Yellow Medicine R	Mercury	Aquatic Consumption
Minnesota River; Granite Falls Dam to Minnesota Falls Dam	Mercury	Aquatic Consumption
Minnesota River; Minnesota Falls Dam to Hazel Cr	Mercury, Phosphorus	Aquatic Consumption
Minnesota River; Palmer Cr to Granite Falls (Class 2B, 3B)	Mercury	Aquatic Consumption
Unnamed Creek; Unnamed Cr to Unnamed Cr	Biologic Index - Fish	Aquatic Life
Unnamed Creek; Unnamed Cr to Unnamed Cr	Biologic Index - Fish	Aquatic Life
Yellow Medicine River; Headwaters to Mud Cr	Mercury	Aquatic Consumption
Chetomba Creek; End Class 7 to Hawk Cr	Biologic Index - Fish	Aquatic Life

Common Resource Areas

The Hawk-Yellow Medicine Watershed is located within two common resource areas, CRA 102A.1, and 103.1. ^{/9}

102A.1 - Rolling Till Prairie: Gently sloping to steep, loamy glacial till soils with scattered sandy outwash soils and silty alluvial flood plains soils. This area is part of the Prairie Pothole region of the upper Midwest. Predominantly cropped to corn and soybeans with increasing hayland and pasture and small grains in the Western part. Resource concerns are water and wind erosion, nutrient management and water quality.

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.



Only the major CRA units are described above.
For further information, go to:
<http://soils.usda.gov/survey/geography/cra.html>

Soils

Soils in the Hawk-Yellow Medicine watershed generally consist of clay, loam and sand, with rock a major characteristic in the northeast portion along the Minnesota river and above Granite Falls. Glacial till deposits cover the entire watershed and form the present land surface.

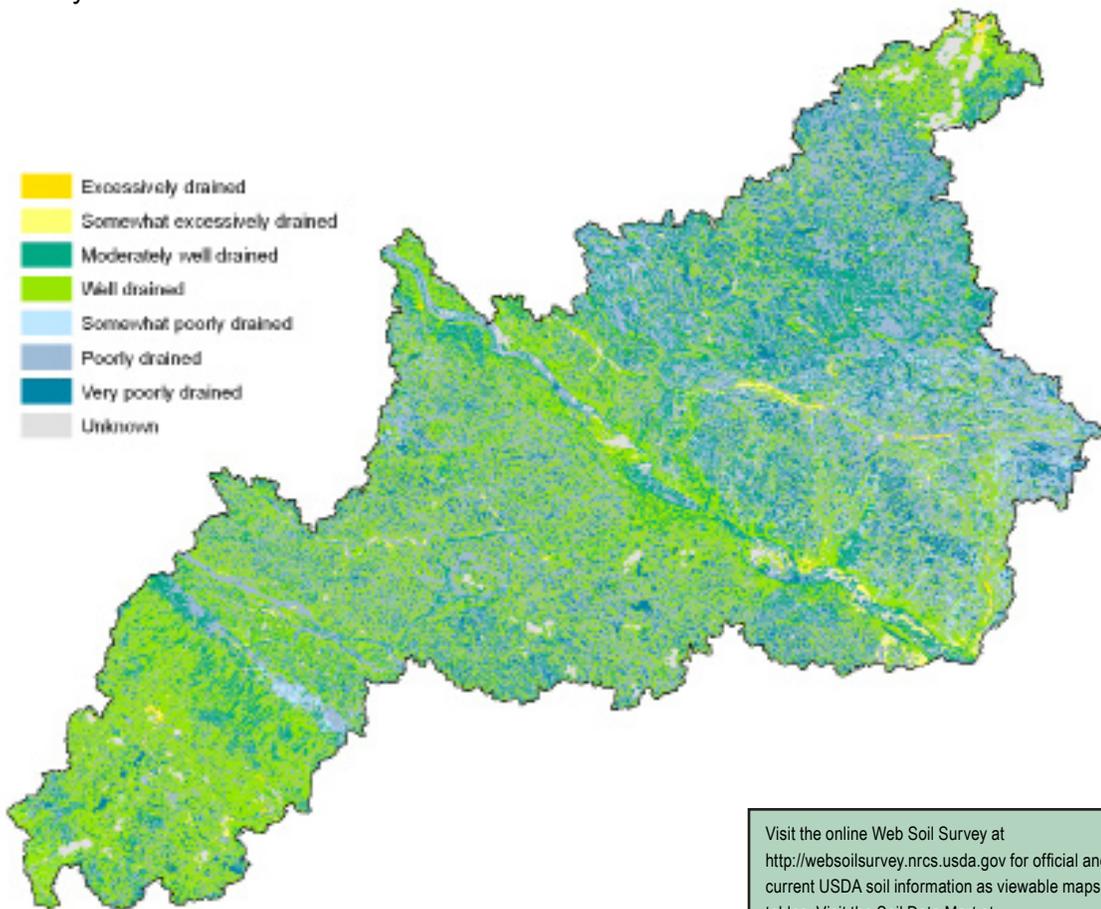
With the exceptions of the Northern tip (lying in the Alexandria Moraine Complex) and the South-western corner (lying in the Benson Lacustrine Plain), the majority of the watershed falls within the geomorphic setting of the Olivia Till Plain. Soils of the Olivia Till Plain are mostly loamy and silty, with roughly two thirds of these being well drained and the remainder poorly drained but improved by tiling. ^{/10}

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.

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.”



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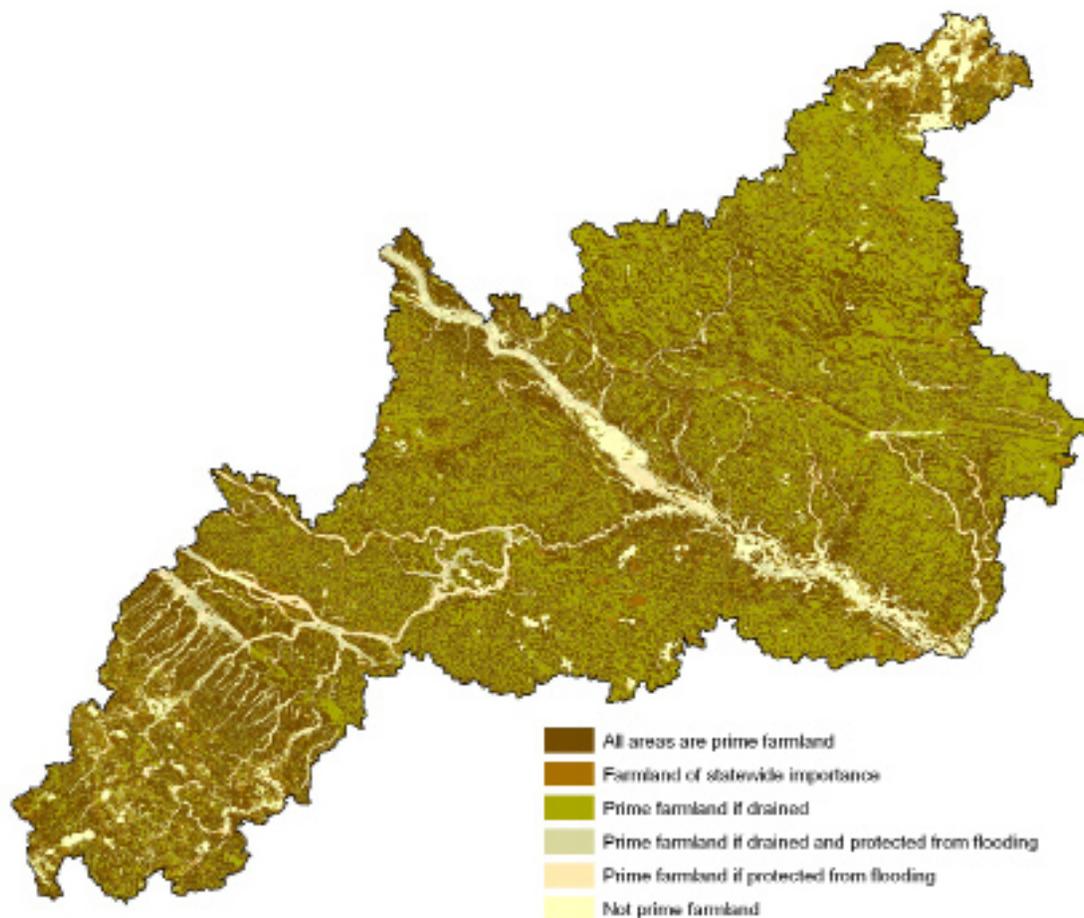
 certified soil tabular and spatial data.

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 from flooding
- Prime farmland if protected from flooding
- Not prime farmland

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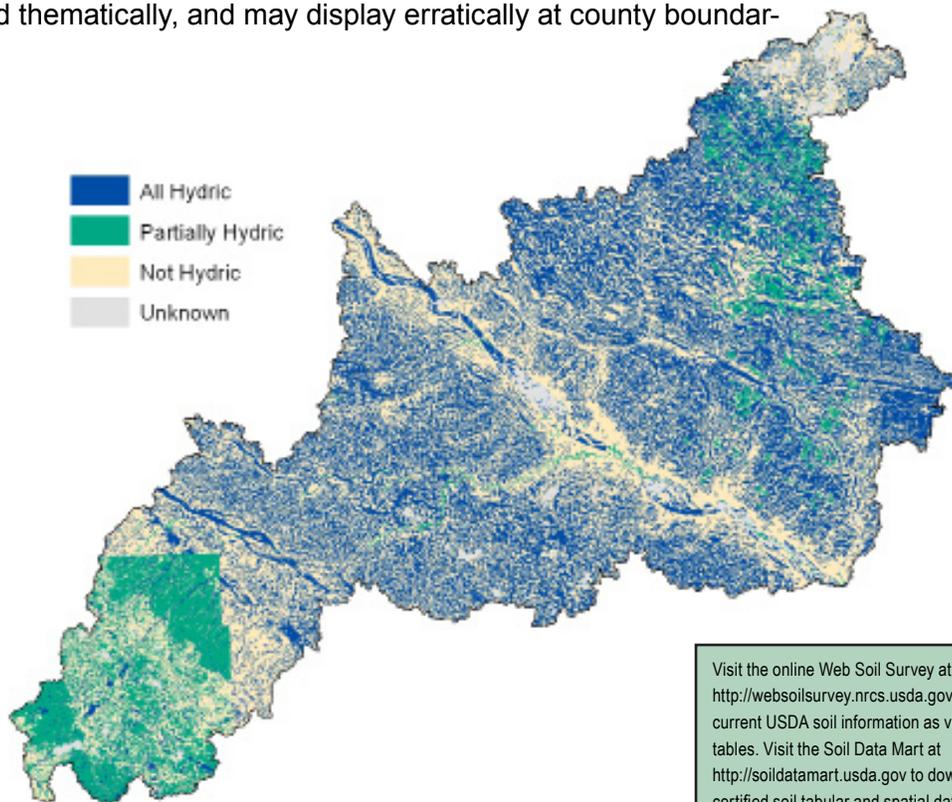
Hydric Soils

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 or 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.

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. Differences in County reporting standards reflect differently when mapped thematically, and may display erratically at county boundaries.



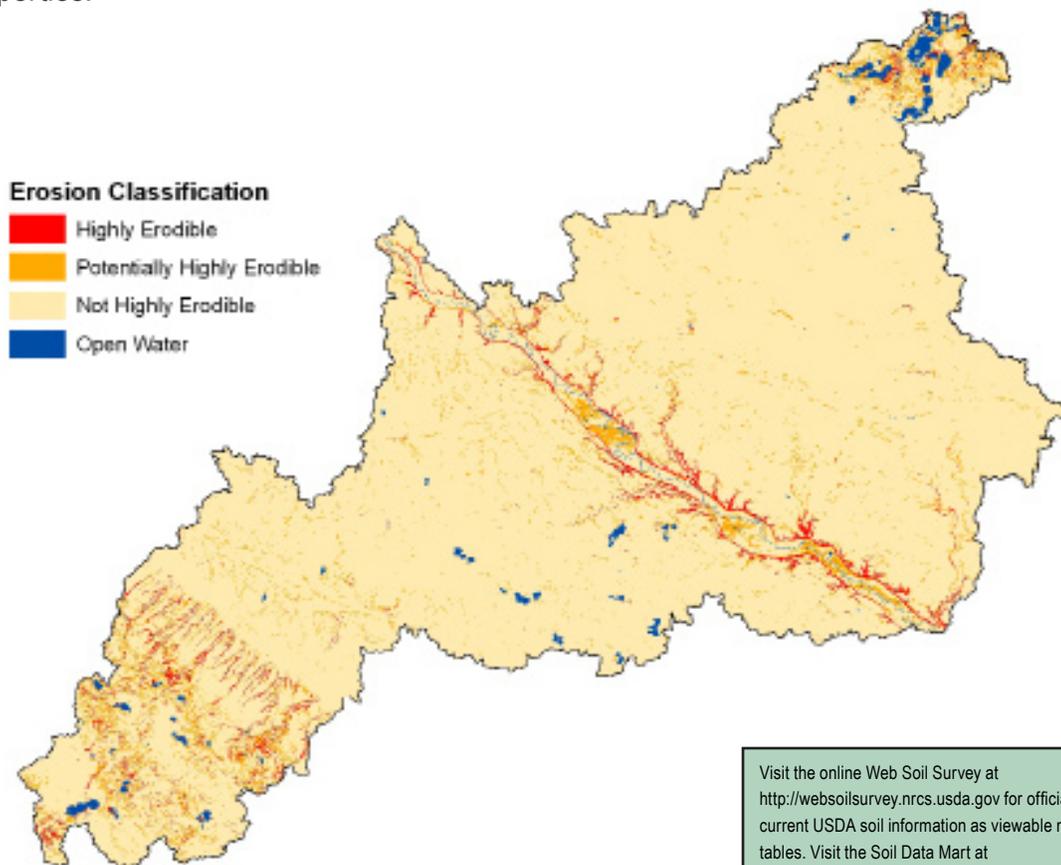
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Highly Erodible Land (HEL)

The erodibility index (EI) for a soil map unit is determined by dividing the potential erodibility for the soil map unit by the soil loss tolerance (T) value established for the soil in the FOTG as of January 1, 1990.

A soil map unit with an EI of 8 or greater is considered to be highly erodible land (HEL).

Potential erodibility is based on default values for rainfall amount and intensity, percent and length of slope, surface texture and organic matter, permeability, and plant cover. Actual erodibility and EI for any specific map unit depends on the actual values for these properties.

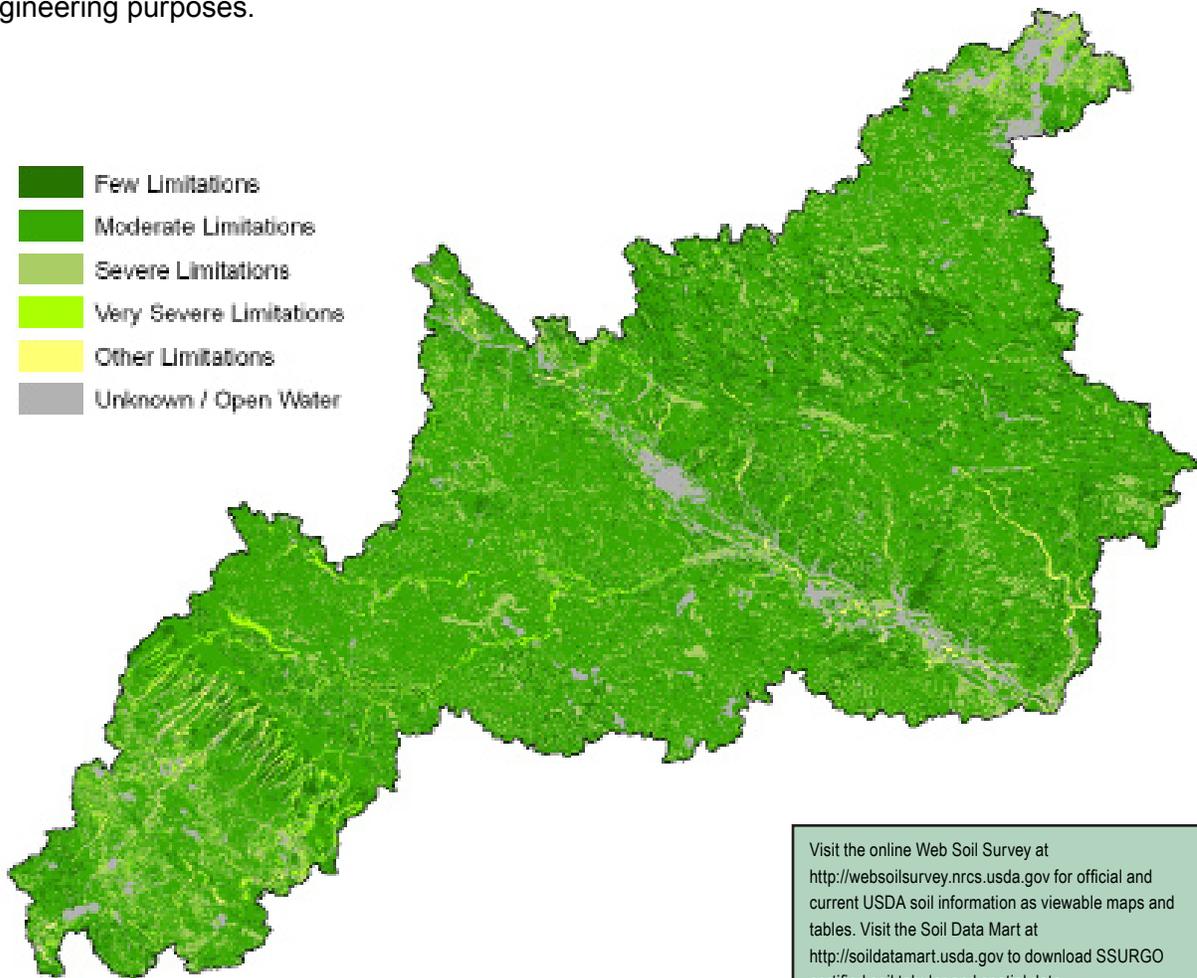


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Land Capability Classification

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.



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Performance Results System and Other Data

In the three year reporting period NRCS Conservation treatment practices applied or prescribed within the Hawk-Yellow Medicine watershed have primarily concentrated on Conservation tillage (12,266 Acres/year average), Nutrient management (5,618 Acres/year), Conservation crop rotations (3,918 Acres/year), and Pest management (2,912 Acres/yr). Other notable efforts have been made in areas of air quality/ wind erosion management, with the addition of over 32,000 feet of windbreak annually.

Conservation Treatment Acres	NRCS Practice Code	FY 04	FY 05	FY 06	Avg/Year	Total
Waste Management (Number)	313, 317, 359	0	0	1	0.3	1
Buffers (Acres)	391, 393	572	435	833	613	1,840
Erosion Control (Acres)	311, 332, 589, 386, 412, 600, 601, 603, 650	0	0	1,131	377	1,131
Irrigation Water Management (Acres)	449	0	0	0	0	0
Wind Break (ft)	380	13,591	47,945	35,045	32,194	96,581
Atmospheric Resource Quality Management (Acres)	370	0	0	0	0	0
Nutrient Management (Acres)	590	1,402	7,065	8,386	5,618	16,853
Pest Management (Acres)	595	1,082	4,935	2,718	2,912	8,735
Prescribed Grazing (Acres)	528, 472, 528A	1,656	1,734	3,066	2,152	6,456
Prescribed Burning (Acres)	338	12	933	560	502	1,505
Trees & Shrubs (Acres)	612, 666	50	942	8	333	1,000
Conservation Tillage (Acres)	329A, 329B, 329C	8,604	10,525	17,670	12,266	36,799
Conservation Crop Rotations (Acres)	328	1,826	3,764	6,165	3,918	11,755
Cover Crops (Acres)	340	0	0	0	0	0
Wildlife Habitat (Acres)	644, 645	944	1,786	5,358	2,696	8,088
Brush Management (Acres)	314	0	0	0	0	0
Restoration of Declining Habitat (Acres)	643	451	103	1,253	602	1,807
Wetland Wildlife Habitat Management (Acres)	644	89	1,266	478	611	1,833
Wetlands (Acres)	657, 658, 659	1,228	1,540	948	1,239	3,716
LANDS REMOVED FROM PRODUCTION THROUGH FARM BILL PROGRAMS¹¹						
Program					Acres	
Conservation Reserve Program (CRP)					52,590	
Wetland Restoration Program (WRP)					1,135	
Conservation Reserve Enhancement Program (CREP)					16,232	

Socioeconomic and Agricultural Data (Relevant)

Population estimates for the Hawk-Yellow Medicine sub basin indicate a population of just over 17,000 people. Annual median household income throughout the district is nearly \$36,000, roughly 86% of the national average. Sixty-five percent of the population over the age of 18 is active in the workforce, and approximately 6% of the residents in the watershed are below the national poverty level.



There are an estimated 2,680 Farms in the Hawk-Yellow Medicine Watershed. Approximately twenty-five percent of the operations are under 180 acres in size, over fifty percent are from 180 to 1000 acres in size, and the remaining farms are greater than 1000 acres in size.

Hawk-Yellow Medicine HUC #7020004 ¹²		
Population Data	Watershed Population	17,054
	Unemployment Rate	3.90%
	Median Household Income	35,996
	% below poverty level	6%
	Median Value of Home	60,627
Farms	# of Farms	2,680
	# of Operators	3,580
	# of Full Time Operators	2,479
	# of Part Time Operators	1,101
	Total Crop/Pasturelands	1,154,200
Farm Size	1 to 49 Acres	166
	50 to 179 Acres	332
	180 to 499 Acres	589
	500 to 999 Acres	451
	1,000 Acres or more	325
Livestock & Poultry	Cattle - Beef	71,209
	Cattle - Dairy	26,342
	Chicken	816,202
	Swine	461,022
	Turkey	1,613,061
	Other	26,839
	Animal Count Total:	3,014,192
	Total Permitted AFOs:	383
Chemicals - Acres Treated	Insecticides	6,530
	Herbicides	90,425
	Wormicides	0
	Fruiticides	151
	Total Chemicals	97,106
	% State Chemical Totals	2.1%

RESOURCE CONCERNS

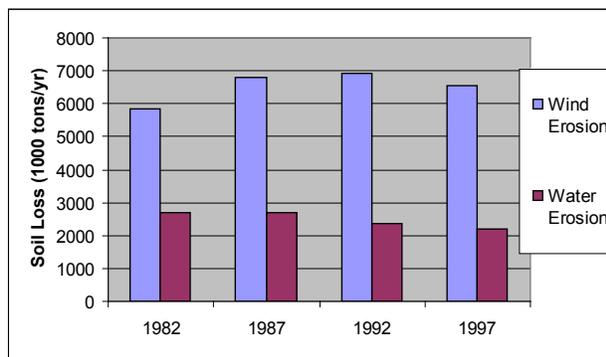
In the Hawk-Yellow Medicine Watershed for 2006, County Soil and Water Conservation Districts identified the following resource concerns as priorities for conservation and cost sharing efforts:

- Soil Quality, Excessive Sheet and Rill Erosion. Soil Erosion and Deposition has ranked as a top concern in each county within the watershed.
- Soil Quality, Excessive Wind Erosion. Prairie Topography makes wind erosion a major conservation issue. Wind erosion physically removes the lighter, less dense soil constituents such as organic matter, clays, silts, thus removing the fertile part of the soil and lowering productivity.
- Surface Water Quality, Nutrients. Reduction of priority pollutants and sediments in surface waters is a priority issue throughout the watershed. Excessive amounts of sediments, nutrients, and bacteria degrade the water quality causing an unbalanced fish community with depressed populations and limited diversity.
- Ground Water Quality, Nutrients, Organics, Animal and Human Waste. Aging septic systems, feedlot runoff, cropland nutrient runoff, tilling practices, and abandoned wells all pose significant threats to groundwater quality throughout the region.
- Surface Water Management, Flood Control, Drainage Management. Drained wetlands, crop production in flood prone areas, and aging dams all diminish surface water quality and productivity. Measures such as the restoration of wetlands, dam repair and placing flood-prone lands in CRP/RIM all serve to lessen the impact of flooding and improve drainage.



- NRI data indicates sheet and rill erosion by water on cropland and pastureland declined by approximately 465,200 (17%) tons of soil between 1982 and 1997.

- NRI estimates show wind erosion rates on cropland and pastureland declined by approximately 729,900 (12.5%) tons of soil between 1982 and 1997.



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Federally Listed Threatened And Endangered Species <small>/14</small>	
ENDANGERED SPECIES	CANDIDATE SPECIES
Fish – Topeka Shiner	Insect – Dakota Skipper
THREATENED SPECIES	PROPOSED SPECIES
Plants – Western Prairie Fringed Orchid, Prairie Bush Clover	None
Essential Habitat - Prairie river and stream habitat for the Topeka Shiner in Lincoln County	

Watershed Projects, Plans and Monitoring*

- **Hawk Creek PL-566** MN NRCS
Chippewa, Renville and Kandiyohi Co. SWCDs
- **Upper Yellow Medicine PL-566** MN NRCS
Lincoln, Yellow Medicine, and Lyon Co SWCDs
- **Three Mile Creek PL-566**
MN NRCS Lincoln and Lyon Co SWCD
- **Minnesota River Turbidity TMDL Work Plan**
Minnesota Pollution Control Agency
- **Greater Yellow Medicine CWP**
Lyon, Lincoln and Yellow Medicine Co, MPCA
- **Minnesota River Assessment Project**
Minnesota Pollution Control Agency
- **Lake Shaokaton Restoration Project (CWP)**
Lincoln County, Yellow Medicine River Watershed District
- **Minnesota River Riparian Forest Restoration Project**
Minnesota Rural Partners, St Cloud State University (Coordinator)
- **South Branch Yellow Medicine TMDL Project**
Minnesota Pollution Control Agency
- **Hawk Creek Clean Water Partnership Project**
Hawk Creek Watershed District, Renville County, MPCA
- **Area II Minnesota River Basin Projects**
Brown, Cottonwood, Lac qui Parle, Lincoln, Lyon, Murray, Redwood, Pipestone, and Yellow Medicine Co. 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
- **Chippewa Soil and Water Conservation District**
629 N 11th Street Montevideo, MN 56265
Phone 320-269-2139 Fax 320-269-8593
- **Clean Up Our River Environment (CURE)**
103 W. Nichols, Montevideo, MN 56265
Phone 320-269-2105 Fax 320-269-2190
- **Coalition for a Clean Minnesota River**
P.O. Box 488, New Ulm, MN 56073
Phone 507-359-2346 Fax 507-359-4465
- **Friends of the Minnesota Valley**
3815 E. 80th St., Bloomington, MN 55425
Phone 612-854-5900 Fax 612-725-3279
- **Greater Yellow Medicine River Watershed District**
122 North Jefferson Minneota, MN 56264
Phone: 507-872-6720 <http://www.ymrwd.org/>
- **Hawk Creek Watershed Project**
500 East Depue Avenue Olivia MN 56277
Phone 320-523-3666
- **Kandiyohi Soil and Water Conservation District**
1005 High Av NE Willmar, MN 56201
Phone 320-235-3906 Fax 320-235-0984
- **Lac qui Parle Soil & Water Conservation District**
122 8th Avenue S Madison, MN 56256
Phone 320-598-7321 ext 3 Fax 320-598-3432
- **Lincoln Soil and Water Conservation District**
P.O. Box 32 Ivanhoe, MN 56142
Phone 507-694-1630 ext. 3 Fax 507-694-1850
- **Lyon Soil and Water Conservation District**
1424 E. College Drive, Suite 600 Marshall, MN 56258
Phone 507-537-0396 Fax 507-532-7479
- **Minnesota River Basin Joint Powers Board**
600 E. 4th St Chaska, MN 55318-2108
Phone 952-361-6590 Fax 952-361-6594
- **Minnesota Waters**
720 W St. Germain St Cloud, MN 56301
Phone 800-515-5253 Web: www.minnesotawaters.org
- **Prairie Country RC&D**
1005 High Avenue NE Willmar, MN 56201-4817
Phone 320-231-0008 Fax 320-235-8151
- **Redwood SWCD**
1241 E Bridge Street Redwood Falls, MN 56283
Phone 507-637-2427 ext. 3 Fax 507-637-8136
- **Renville Soil and Water Conservation District**
1008 W Lincoln Olivia, MN 56277
Phone 320-523-1553 ext. 3 Fax 320-523-2389
- **Yellow Medicine SWCD**
1000 10th Avenue, Bx 545 Clarkfield, MN 56223
Phone 320-669-4442 ext. 3 Fax 320-669-7525
- **Yellow Medicine River Watershed District**
122 North Jefferson Street Minneota MN 56264
Phone 507-872-6720

Footnotes / Bibliography

1. Ownership Layer – Source: MN Stewardship Data: Minnesota Department of Natural Resources, Section of Wildlife, BRW, Inc, 2007. 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: 19990631; 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. USGS 1:100,000 Hydrography Layer .This data set represents all features coded as ‘rivers’ on the USGS 1:100,000-scale DLG Hydrography data set. This current version was converted to ARC/INFO by the Land Management Information Center and edge-matched across map sheet boundaries. Minnesota DNR made further modifications to the files, verified lake feature identifiers, and created a state layer from the separate 100k data. The Hydro 100k layer was compared to MPCA’s 303(d) data to derive percentage of listed waters.
5. Land Cover / Land Use / Hydro 100k Buffer. Using the 100k 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) TMDL data. Minnesota’s Final Impaired Waters (per Section 303(d) Clean Water Act), 2006. 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 ARC Edit 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 (7/30/04). CREP Acres: <http://www.bwsr.state.mn.us/easements/crep/easementssummary.html> (7/31/03). WRP Acres: NRCS (8/16/04). 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. Unemployment statistics obtained from the Bureau of Labor Statistics - Labor Force Data by County, 2006 Annual Averages <http://www.bls.gov> 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/>. 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>. Individual or independent projects as follow:

- Hawk Creek Watershed Project <http://mrdbc.mnsu.edu/major/hawkyell/descmanage25.html>.
- Minnesota River Turbidity TMDL Work Plan <http://www.pca.state.mn.us/publications/wq-b3-30.pdf>.
- Greater Yellow Medicine River Watershed Project <http://mrdbc.mnsu.edu/projects/p0089cwp.html>.