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**Rapid Watershed Assessment**  
**South Fork Crow River**  
**(MN) HUC: 07010205**

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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.

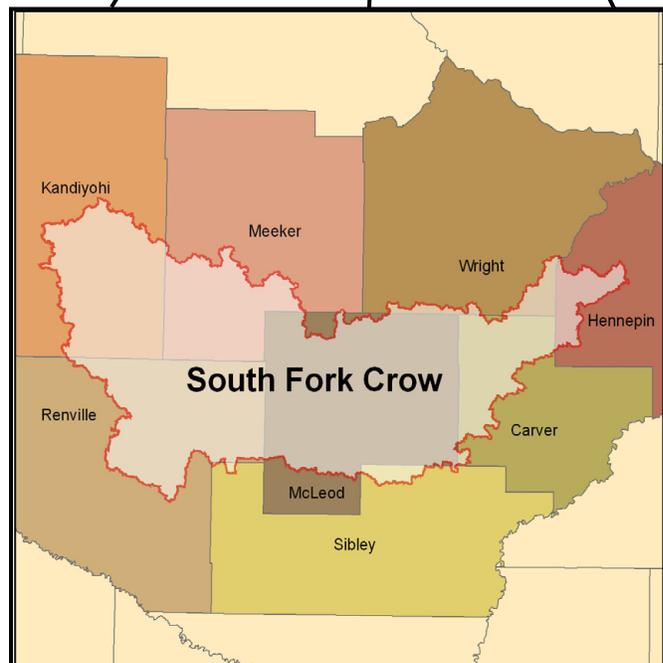
## Introduction

The South Fork Crow 8-Digit Hydrologic Unit Code (HUC) subbasin is predominantly located within the Western Cornbelt Plains Ecoregion of Minnesota, with a small portion extending into the adjacent North Central Hardwood Forest Ecoregion. Approximately ninety eight percent of the 818,428 acres in this HUC are privately owned. The remaining acres are federal, state, county or conservancy lands.

Assessment estimates indicate 2,172 Farms in the watershed. Approximately sixty one percent of the operations are less than 180 acres in size, thirty two percent are from 180 to 1000 acres in size, and the remaining farms are greater than 1000 acres in size. Of the 2,218 Operators in the basin, sixty seven percent are full time producers not reliant on off farm income.

The main resource concerns in the watershed are water and soil quality, animal waste management, windbreak maintenance, wetland management, surface water quality, groundwater protection, and wildlife habitat.

Many of the resource concerns relate directly to agricultural practices and increased development in the region, resulting in fragmentation and increased sediment and pollutant (mercury, fecal coliform, excess nutrients) loadings to surface waters.



### County Totals

<b>County</b>	<b>Acres in HUC</b>	<b>% HUC</b>
Kandiyohi	140,479	17.2%
Wright	21,516	2.6%
Meeker	103,511	12.6%
Hennepin	29,210	3.6%
McLeod	272,193	33.3%
Carver	74,817	9.1%
Renville	165,999	20.3%
Sibley	10,703	1.3%
<b>Total acres:</b>	<b>818,428</b>	<b>100%</b>

## Physical Description

Elevations in the upper portions of the South Fork Crow watershed range from 1200 feet above mean sea level, sloping to elevations of 900-1000 feet at the mouth of the watershed.

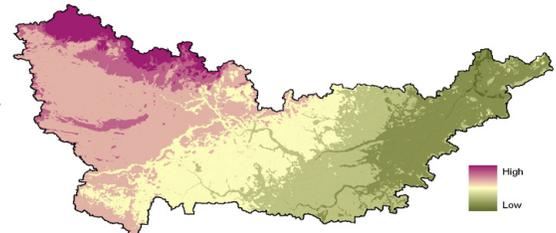
Precipitation in the watershed ranges from 27 to 29 inches each year. Evaporation estimates are between 33 to 37 inches annually (Minnesota State Climatologists Office, 1999).

Most lands within this HUC are not highly erodible, and are moderately to well suited to agricultural uses. Soils in the western portions of the watershed are the most agriculturally productive soils in the Upper Mississippi River Basin. Predominate land uses / land covers are Row Crops (72.3%), Grass/Pasture/Hay (10.6%), Residential/Commercial Development (5.8%), and Forest (4.2%).

Land use within the watershed is largely agricultural, with rowcrops and pasture/grass lands accounting for approximately 83% of the overall watershed acres.

Development pressure is moderate to considerable in some areas, with occasional farms, timberland, and lakeshore being parceled out for recreation, lake or country homes.

**Relief**

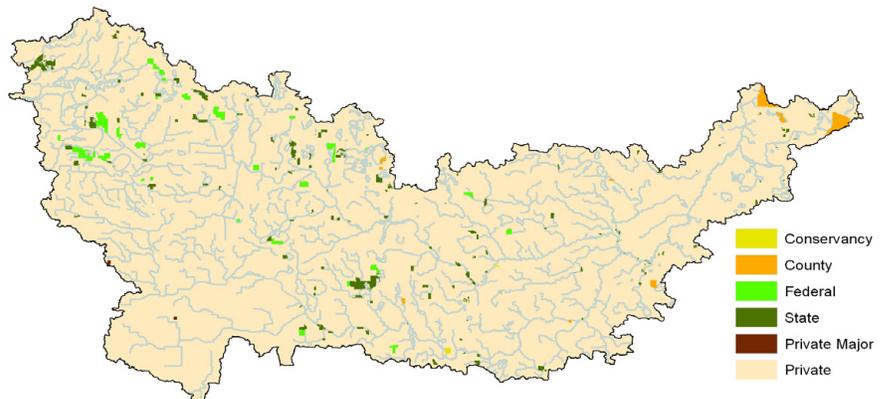


**Average Precipitation**



## Ownership

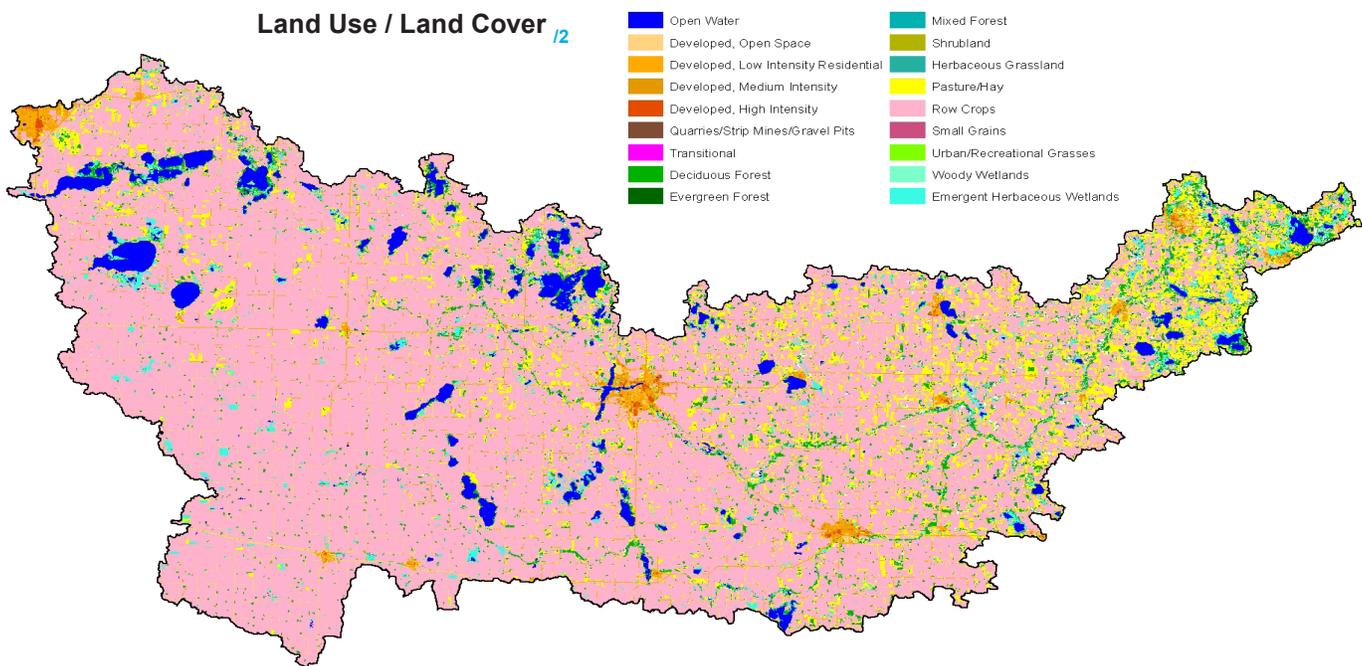
Ownership Type	Acres	% of HUC
Conservancy	202	0.0
County	3,157	0.4
Federal	5,806	0.7
State	8,795	1.1
Other	-	-
Tribal	-	-
Private Major	121	0.0
Private	800,347	97.8
<b>Total Acres:</b>	<b>818,428</b>	<b>100</b>



\* Ownership totals derived from 2007 MN DNR GAP Stewardship Coverage 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 South Fork Crow watershed covers an area of 818,428 acres. Slightly less than ninety eight percent of the land in the watershed is owned by private landholders (800,347 acres). The second largest ownership type is State, with approximately 8,795 acres (1.1%), followed by Federal with 5,806 acres (0.7%), County with 3,157 acres (0.4%), Conservancy with approximately 202 acres (<0.01%), and Private Major with 121 acres (<0.01%) Existing ownership data shows no major Tribal land holdings in the region. Land use by ownership type is represented in the table below.



## Ownership / Land Use

<sup>13</sup>

Landcover/Use	Public		Private**		Tribal		Total Acres	Percent	
	Acres	% Public	Acres	% Private	Acres	% Tribal			
Forest	1,658	0.2%	32,565	4.0%	0	0.0%	34,223	4.2%	
Grass, etc	3,537	0.4%	83,228	10.2%	0	0.0%	86,766	10.6%	
Orchards	0	0.0%	0	0.0%	0	0.0%	0	0.0%	
Row Crops	6,599	0.8%	584,926	71.5%	0	0.0%	591,525	72.3%	
Shrub etc	485	0.1%	5,809	0.7%	0	0.0%	6,294	0.8%	
Wetlands	3,379	0.4%	18,908	2.3%	0	0.0%	22,287	2.7%	
Residential/Commercial	805	0.1%	46,583	5.7%	0	0.0%	47,389	5.8%	
Open Water*	1,283	0.2%	28,667	3.5%	0	0.0%	29,950	3.7%	
* ownership undetermined		** includes private-major							
<b>Watershed Totals:</b>	<b>17,747</b>	<b>2.17%</b>	<b>800,686</b>	<b>97.8%</b>	<b>0</b>	<b>0.0%</b>	<b>818,428</b>	<b>100%</b>	

Physical Description (continued)

		ACRES	cu. ft/sec	
<b>Stream Flow Data</b>	USGS 05279000 SOUTH FORK CROW RIVER NEAR MAYER, MN	<b>Total Avg.</b>	--	
		<b>*No Current USGS Streamflow monitoring</b>		
<b>Stream Data<sup>14</sup></b> (*Percent of Total HUC Stream Miles)		<b>MILES</b>	<b>PERCENT</b>	
	Total Miles – Major (100K Hydro GIS Layer)	1,541	---	
	303d/TMDL Listed Streams (DEQ)	200	13%	
<b>Riparian Land Cover/Land Use<sup>15</sup></b> (Based on a 100-foot buffer on both sides of all streams in the 100K Hydro GIS Layer)	<b>Land Use Type</b>	<b>Acres</b>	<b>Percent</b>	
	Forest	4,289	11.7%	
	Grain Crops	0	0.0%	
	Grass, etc	3,787	10.3%	
	Orchards	0	0.0%	
	Row Crops	18,890	51.3%	
	Shrub etc	351	1.0%	
	Wetlands	3,317	9.0%	
	Residential/Commercial	1,472	4.0%	
	Open Water	4,701	12.8%	
	<b>Total Buffer Acres:</b>	<b>36,807</b>	100%	
<b>Crop and Pastureland Land Capability Class<sup>16</sup></b> (Croplands & Pasturelands Only) (1997 NRI Estimates for Non-Federal Lands Only)	<b>1 – slight limitations</b>	34,400	6%	
	<b>2 – moderate limitations</b>	430,100	71%	
	<b>3 – severe limitations</b>	116,600	19%	
	<b>4 – very severe limitations</b>	13,300	2.2%	
	<b>5 – no erosion hazard, but other limitations</b>	1,900	0.3%	
	<b>6 – severe limitations; unsuitable for cultivation; limited to pasture, range, forest</b>	7,800	1.3%	
	<b>7 – very severe limitations; unsuitable for cultivation; limited to grazing, forest, wildlife habitat</b>	2,900	0.4%	
	<b>8 – miscellaneous areas; limited to recreation, wildlife habitat, water supply</b>	2,100	0.3%	
	<b>Total Croplands &amp; Pasturelands</b>	<b>609,100</b>	---	
	<b>TYPE OF LAND</b>	<b>ACRES</b>	<b>% of Crop Lands</b>	<b>% of HUC</b>
<b>Irrigated Lands<sup>17</sup></b> (1997 NRI Estimates for Non-Federal Lands Only)	Cultivated Cropland / Pastureland	0	0%	0%
	Uncultivated Cropland	0	0%	0%
	<b>Total Irrigated Lands</b>	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.

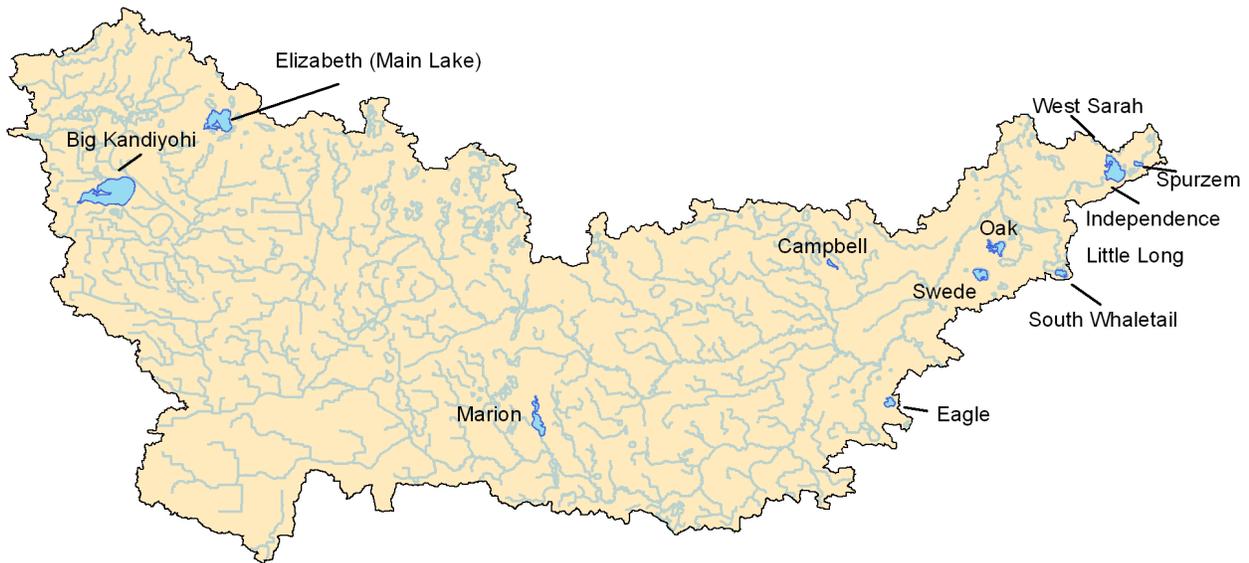
### 2006 Minnesota 303d Listed Streams - South Fork Crow



Listed Stream / Reach	Impairment	Affected Use
Buffalo Creek; JD #15 to South Fk Crow R	Mercury, Fish IBI	Aquatic Life and Aquatic Consumption
Buffalo Creek; Headwaters to JD #15	Mercury, Fish IBI	Aquatic Life and Aquatic Consumption
Crow River, South Fk; Headwaters to Hutchinson Dam	Mercury, Fish IBI	Aquatic Life and Aquatic Consumption
Branch #4; Wagonga Lk to S Fk Crow R	Mercury	Aquatic Consumption
CD 23A; Headwaters to Wagonga Lk	Mercury	Aquatic Consumption
Crow River, South Fk; Headwaters to Hutchinson Dam	Mercury, Fish IBI	Aquatic Life and Aquatic Consumption
Crow River, South Fk; Buffalo Cr to Crow R	Mercury, Fish IBI, Turbidity	Aquatic Life and Aquatic Consumption
JD 15; Headwaters to Class 7 portion	Fish IBI	Aquatic Life
Crow River, South Fk; Hutchinson Dam to Bear Cr	Mercury	Aquatic Consumption
Crow River, South Fk; Bear Cr to Otter Cr	Mercury	Aquatic Consumption
Crow River, South Fk; Otter Cr to Buffalo Cr	Mercury	Aquatic Consumption
Crow River, South Fk; Headwaters to Hutchinson Dam	Mercury, Fish IBI	Aquatic Life and Aquatic Consumption
Crow River, South Fk; Buffalo Cr to Crow R	Mercury, Fish IBI, Turbidity	Aquatic Life and Aquatic Consumption
Crow River, South Fk; Headwaters to Hutchinson Dam	Mercury, Fish IBI	Aquatic Life and Aquatic Consumption

**Assessment of Waters (continued)**

**2006 Minnesota 303d Listed Lakes - South Fork Crow**



Listed Lake	Impairment	Affected Use
Oak	Excess nutrients	Aquatic Recreation
Swede	Excess nutrients	Aquatic Recreation
Eagle	Excess nutrients	Aquatic Recreation and Aquatic Consumption
Campbell	Excess nutrients	Aquatic Recreation
Spurzem	Mercury	Aquatic Consumption
Independence	Excess nutrients	Aquatic Recreation and Aquatic Consumption
Little Long	Mercury	Aquatic Consumption
South Whaletail	Excess nutrients	Aquatic Recreation
West Sarah	Excess nutrients	Aquatic Recreation and Aquatic Consumption
Elizabeth (Main Lake)	Mercury	Aquatic Consumption
Big Kandiyohi	Mercury	Aquatic Consumption
Marion	Mercury	Aquatic Consumption

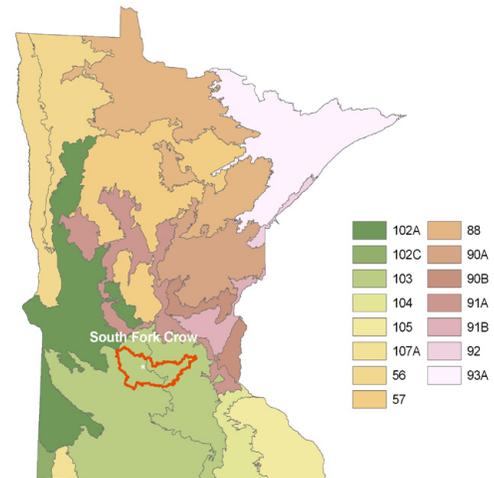
## Common Resource Areas

The South Fork Crow Watershed encompasses two common resource areas, 103.2, and 103.1. <sup>9</sup>

### 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 & wildlife habitat management.

**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/wind erosion, nutrient mngmt, and water quality.



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

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

The watershed is located in the Central Lowland physiographic province, characterized by flatlying to rolling ground moraines and outwash plains. The bedrock geology of the watershed includes Precambrian and Paleozoic sedimentary rocks in the lower watershed, Cretaceous rocks in the central part of the watershed, and Precambrian crystalline rocks in the upper watershed.

The watershed lies mainly in the Des Moines Lobe association of calcareous glacial deposits, with a small part of the extreme northwestern part of the watershed lying in the Wadena Lobe association. These lobes left clay-rich calcareous deposits containing fragments of limestone and shale.

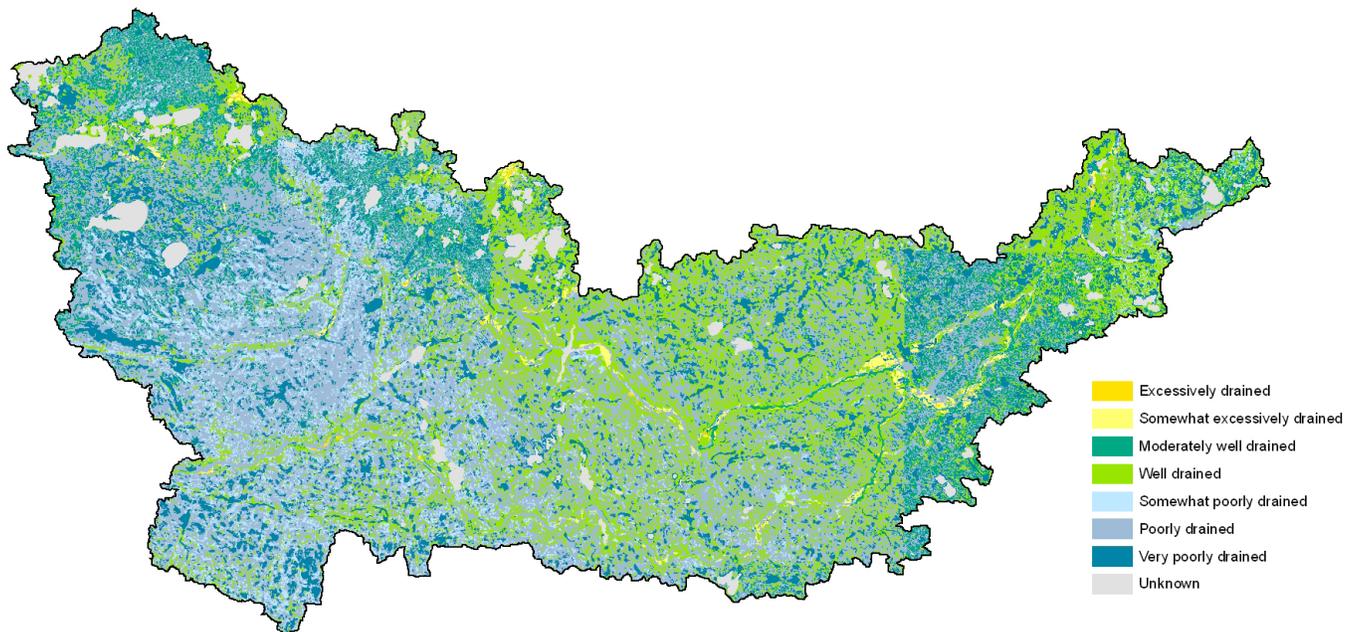
Soils in the eastern watershed are mainly alfisols, which have thin, gray to brown surface horizons underlain with alluvial clay. Alfisols generally form beneath deciduous forests underlain by silty sands and are typically present in woodland and mixed woodland/cropland areas. Soils in the western watershed are mainly mollisols, which have a thick, dark, organic-rich, fertile surface horizon. Mollisols typically form on prairies underlain by calcareous sediments. They are the most agriculturally productive soils in the Upper Mississippi River Basin.

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.”



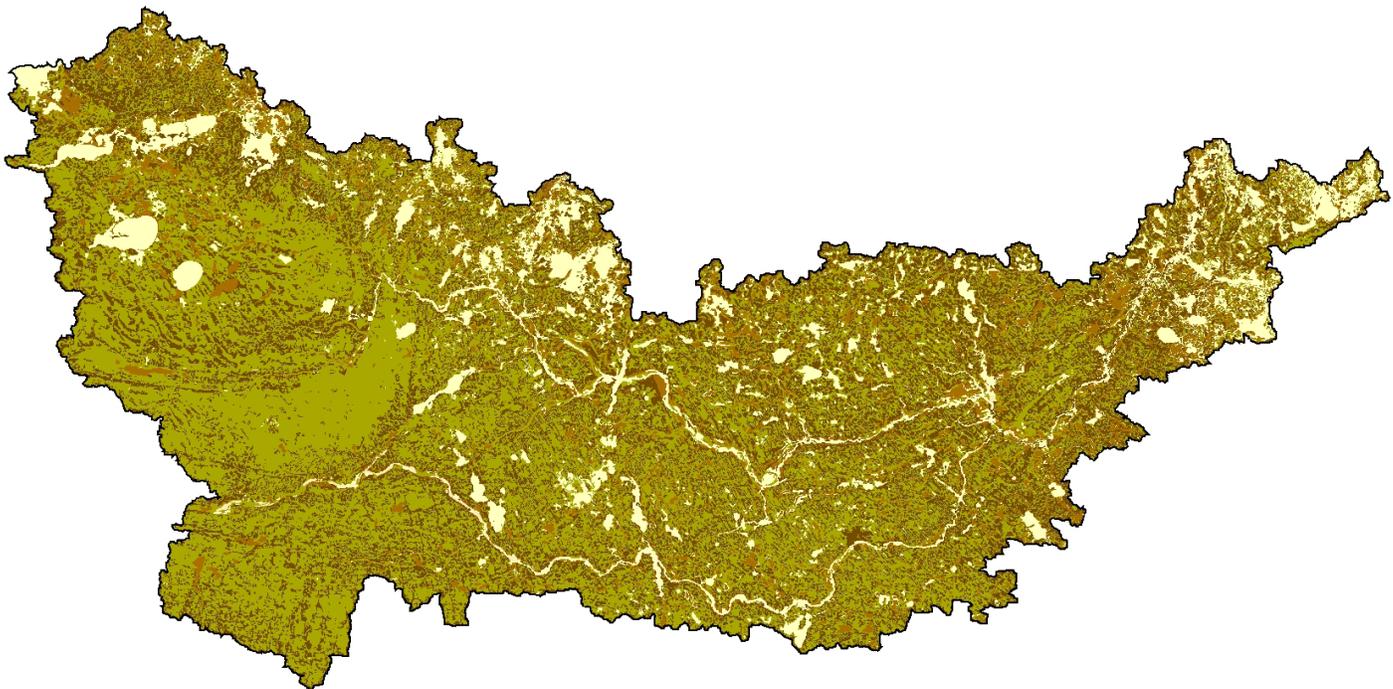
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## Farmland Classification

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

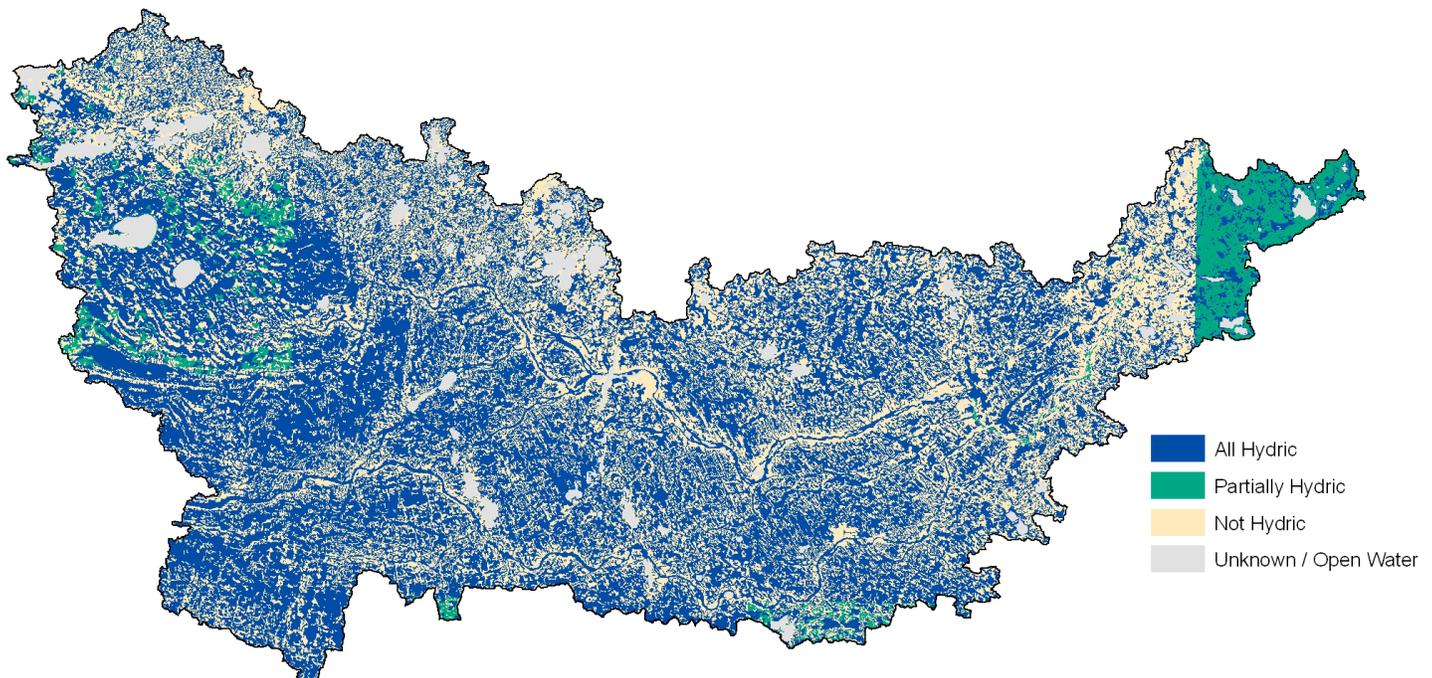
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## Hydric Soils

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 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.

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.



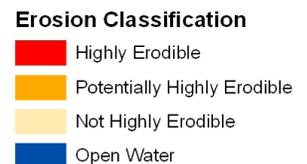
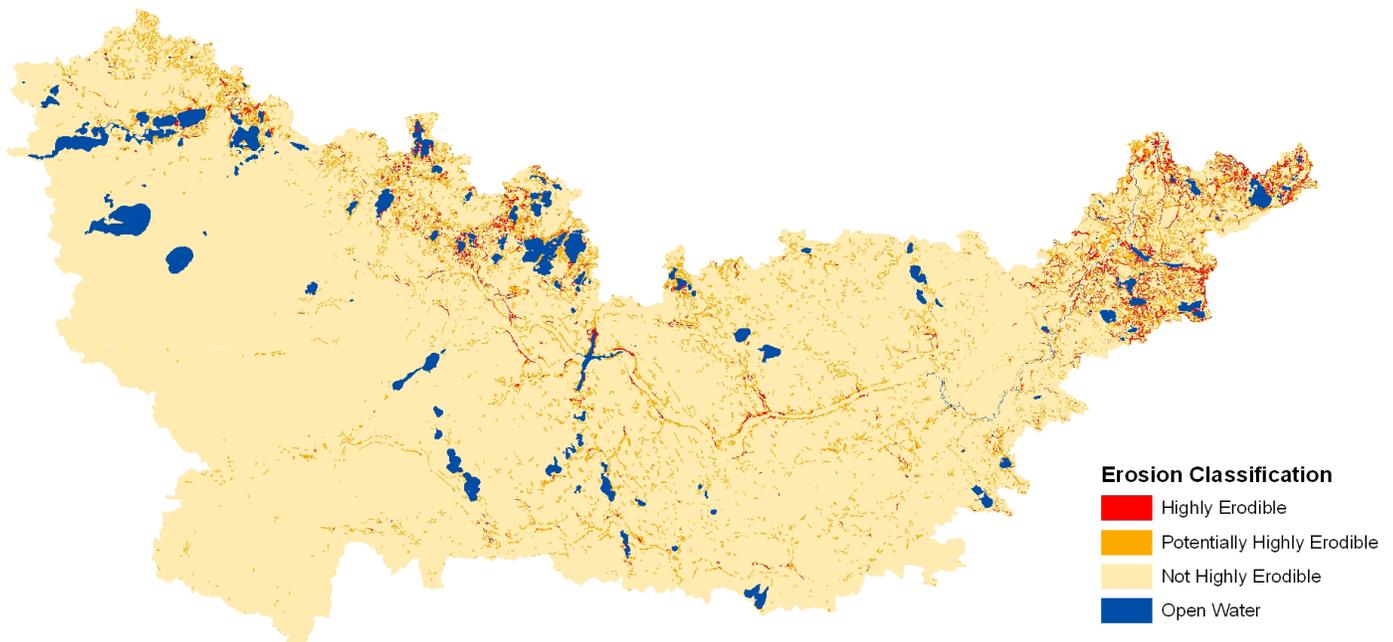
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## Highly Erodible Land (HEL)

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.

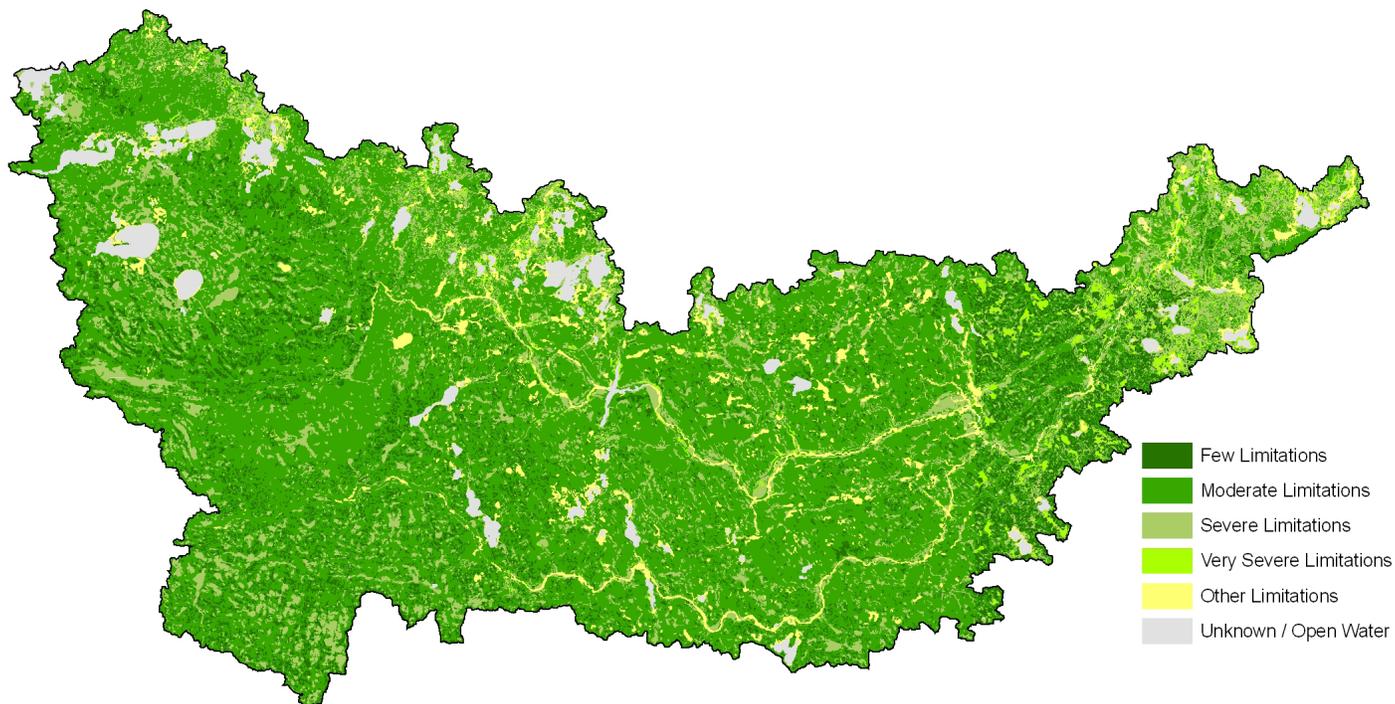


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## Land Capability Classification

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 Data**

Watershed Name: South Fork Crow				Watershed Number: 07010205						
PRS Performance Measures	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	TOTAL
Total Conservation Systems Planned (acres)	2,347	1,328	0	8,604	10,379	N/A	11,804	13,144	6,541	54,147
Total Conservation Systems Applied (acres)	1,658	3,169	0	7,160	7,160	N/A	11,189	13,691	9,695	53,722
<b>Conservation Practices</b>										
Total Waste Management (313) (numbers)	0	2	1	3	0	2	0	0	1	9
Riparian Forest Buffers (391) (acres)	0	11	14	14	61	4	0	15	4	123
Erosion Control Total Soil Saved (tons/year)	1,502	14,419	14,255	33,365	21,863	N/A	N/A	N/A	N/A	85,404
Total Nutrient Management (590) (Acres)	0	1,109	781	283	1,172	570	1,418	1,418	1,306	8,057
Pest Management Systems Applied (595A) (Acres)	0	214	284	415	736	0	161	224	13	2,047
Prescribed Grazing 528a (acres)	0	10	0	0	183	95	0	65	65	418
Tree & Shrub Establishment (612) (acres)	15	155	24	119	93	31	2	39	16	494
Residue Management (329A-C) (acres)	40	6,135	1,512	3,514	2,082	1,691	1,691	4,283	1,504	22,452
Total Wildlife Habitat (644 - 645) (acres)	1,384	1,081	776	1,393	1,782	252	1,393	3,557	1,888	13,506
Total Wetlands Created, Restored, or Enhanced (acres)	22	48	69	98	65	159	163	346	352	1,322
<b>Acres enrolled in Farmbill Programs</b>										
Conservation Reserve Program	1,576	1,451	1,009	1,408	2,042	N/A	937	1,258	2,785	12,466
Wetlands Reserve Program	0	17	58	0	0	N/A	196	156	185	612
Environmental Quality Incentives Program	0	353	368	283	166	N/A	5,960	7,016	4,676	18,822
Wildlife Habitat Incentive Program	0	0	0	5	21	N/A	65	94	52	237
Farmland Protection Program	0	0	0	0	0	N/A	0	0	0	0

**THREATENED AND ENDANGERED SPECIES** /14

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, candidate species and species of special concern that occur in the basin.



Scientific Name	Common Name	Type
<i>Agalinis auriculata</i>	Eared False Foxglove	Botanical
<i>Alasmidonta marginata</i>	Elktoe	Zoological
<i>Asclepias sullivantii</i>	Sullivant's Milkweed	Botanical
<i>Buchloe dactyloides</i>	Buffalo Grass	Botanical
<i>Cirsium hillii</i>	Hill's Thistle	Botanical
<i>Cypripedium candidum</i>	Small White Lady's-slipper	Botanical
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Zoological
<i>Larus pipixcan</i>	Franklin's Gull	Zoological
<i>Limosa fedoa</i>	Marbled Godwit	Zoological
<i>Najas marina</i>	Sea Naiad	Botanical
<i>Oarisma powesheik</i>	Powesheik Skipper	Zoological
<i>Panax quinquefolius</i>	American Ginseng	Botanical
<i>Podiceps auritus</i>	Horned Grebe	Zoological
<i>Rallus elegans</i>	King Rail	Zoological
<i>Rhynchospora capillacea</i>	Hair-like Beak-rush	Botanical
<i>Speyeria idalia</i>	Regal Fritillary	Zoological
<i>Sterna forsteri</i>	Forster's Tern	Zoological

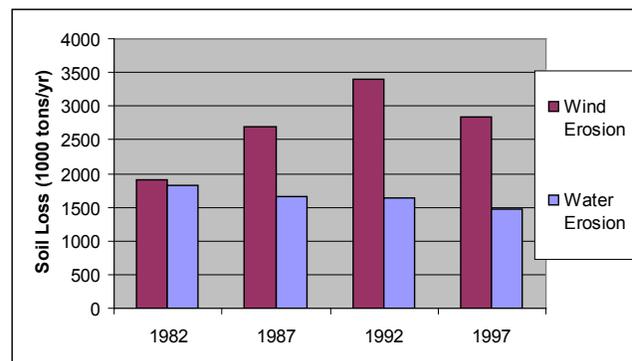
## RESOURCE CONCERNS

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

- Soil Quality, Surface Water Quality - Excessive Erosion.** Soil Erosion and Deposition has ranked as a top concern in each county within the watershed in relation to both soil quality and surface water quality.
- 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 waste systems in high priority riparian areas and areas with coarse grained soils will greatly reduce the effects of animal feed operations on area waters.
- Groundwater Protection.** Groundwater contamination susceptibility in the watershed is generally moderate in the lower region, slight in central areas, and high in the upper watershed, with a pocket of extreme susceptibility near the river upstream of the confluence of the North and South Forks of the Crow River. Combined with other conservation efforts, sealing of abandoned wells and removal or replacement of aging septic systems are priorities for groundwater protection.
- Windbreak Maintenance.** Windbreak establishment and maintenance of existing windbreak is a priority for continued decreases in wind erosion and improved management of non-industrial woodlands.
- Surface Water Quality, Nutrients, Priority Pollutants.** 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 a fish community with depressed populations and limited diversity. Increased levels of phosphorus and chlorophyll-a are reaching area lakes as impervious surface increases and natural buffers disappear.
- Wildlife Habitat.** Given the fragmentation caused by agricultural practices and increased shoreland development, natural corridors of natural habitat for wildlife are decreasing. A need exists to improve or establish both wetland and upland habitat throughout the watershed.
- Wetland Management.** Due to agricultural practices and documented development pressures within shoreland areas, priority is given to preserving the wetlands within 1000 feet of a lake or 300 feet of a river. Restoration of wetlands, dam repair and placing flood-prone lands in CRP/RIM all serve to lessen the impact of flooding and sedimentation, and improve drainage.

### NRI Erosion Estimates

- Sheet and rill erosion by water on the cropland and pastureland decreased by approximately 362,500 tons (19.82%) of soil between 1982 and 1997.
- NRI estimates indicate wind erosion rates increased by 936,300 tons (49.25%) between 1982 and 1997. [/13](#)



## Socioeconomic and Agricultural Data (Relevant)

Estimations for the South Fork Crow subbasin indicate a current population of just under 73,900 people. Median household income throughout the district is \$48,563 annually, roughly 102% of the national average. Unemployment is estimated at 4.1%, and approximately 7% of the residents in the watershed live below the national poverty level.

Assessment estimates indicate 2,172 Farms in the watershed. Approximately sixty one percent of the operations are less than 180 acres in size, thirty two percent are from 180 to 1000 acres in size, and the remaining farms are greater than 1000 acres in size. Of the 2,218 Operators in the basin, sixty seven percent are full time producers not reliant on off farm income.



<b>(MN) HUC# 7010205</b>		<b>Total Acres:</b>	<b>818,428</b>
<b>Population Data*</b>	Watershed Population	73,898	
	Unemployment Rate	4.1%	
	Median Household Income	48,563	
	% below poverty level	7%	
	Median Value of Home	110,650	
<b>Farms</b>	# of Farms	2,172	
	# of Operators	2,218	<b>Percent</b>
	# of Full Time Operators	1,480	67%
	# of Part Time Operators	738	33%
	<b>Total Crop/Pasturelands:</b>	<b>609,100</b>	<b>74.4%</b>
<b>Farm Size</b>	1 to 49 Acres	709	32%
	50 to 179 Acres	637	29%
	180 to 499 Acres	511	23%
	500 to 999 Acres	205	9%
	1,000 Acres or more	148	7%
<b>Livestock &amp; Poultry</b>	Cattle - Beef	4,166	0%
	Cattle - Dairy	16,485	1%
	Chicken	4,655	0%
	Swine	116,746	5%
	Turkey	1,001,944	44%
	Other	1,150,735	50%
	<b>Animal Count Total:</b>	<b>2,294,732</b>	
	<b>Total Permitted AFOs:</b>	<b>564</b>	
<b>Chemicals (Acres Applied)</b>	Insecticides	28,104	
	Herbicides	271,224	
	Wormicides	648	
	Fruiticides	9,643	
	<b>Total Acres Treated</b>	<b>309,618</b>	
	<b>% State Chemical Totals</b>	<b>2.2%</b>	

\* 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

## Watershed Projects, Plans and Monitoring

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- **Biological & Toxicological Assessment**  
Minnesota Pollution Control Agency
- **Crow River Phase I Diagnostic Study**  
Crow River Organization of Water
- **Greater Crow Water Quality Enhancement Project**  
Prairie Country RC&D Council
- **Crow Watershed Phase 1 CWP Study**  
Crow Joint Powers Board, MPCA
- **Mid Fork Crow River Watershed Project**  
MN DNR, MPCA, Mid Fork Crow Lakes Assn.
- **Annual Crow River Clean Up Day**  
Crow River Organization of Water
- **Citizen Stream Monitoring Program**  
Crow River Organization of Water
- **Mississippi River Defense Network**  
Legislative Commission on Minnesota Resources
- **Mississippi River Watch**  
Mississippi Headwaters Board
- **Upper Mississippi River Basin Planning**  
Minnesota Pollution Control Agency
- **Upper Mississippi Source Water Protection Project**  
Minnesota Department of Health
- **Upper Mississippi River WS Forest Partnership**  
USDA Forest Service
- **Upper Mississippi River Watershed Fund**  
USDA Forest Service / National Fish & Wildlife Federation
- **Upper Mississippi River Basin W.Q. Plan**  
Minnesota Pollution Control Agency

\* 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

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- **Carver County SWCD**  
219 E Frontage Rd, Waconia, MN 55387-1862  
Phone (952) 442-5101
- **Hennepin County SWCD**  
1313 5th St SE Ste 224C, Minneapolis, MN 55414  
Phone (612) 379-3932
- **Kandiyohi Conty SWCD**  
1005 High Ave NE, Willmar, MN 56201-2667  
Phone (320) 235-3906
- **McLeod County SWCD**  
2570 9th St E, PO Box 160, Glencoe, MN 55336  
Phone (320) 864-5176
- **Meeker County SWCD**  
916 E St Paul St, Litchfield, MN 55355-0891  
Phone (320) 693-7287
- **Renville County SWCD**  
1008 W Lincoln, Olivia, MN 56277  
Phone (320) 523-1559
- **Sibley County SWCD**  
111 6th St, PO Box 161, Gaylord, MN 55334  
Phone (507) 237-5435
- **Wright County SWCD**  
306 C Brighton Ave, Buffalo, MN 55313  
Phone (763) 682-1970
- **Buffalo Creek Watershed District**  
PO Box 55 Glencoe, MN 55336  
Phone (507)389-5492
- **Friends of the Mississippi River**  
360 N Robert St Saint Paul, MN 55101  
Phone (651) 222-2193
- **Crow River Org. of Water (Joint Powers Board)**  
306c Brighton Avenue Buffalo, MN 55113  
Phone (763) 682-1933 ext. 3
- **Prairie Country RC&D**  
1005 High Avenue Willmar, MN 56201  
Phone (320) 231-0008, Ext. 5
- **Trout Unlimited Twin Cities Chapter**  
PO Box 390207  
Edina, MN 55439-0207
- **South Fork Crow River Association**  
PO Box 74 Hutchinson, MN 55350  
Phone (507) 766-0173

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## 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. U.S. Geological Survey National Hydrography Dataset (NHD) 1:100,000-scale Digital Line Graph (DLG) medium resolution hydrography data, integrated with reach-related information from the U.S. Environmental Protection Agency Reach File Version 3.0 (RF3). 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) Stream 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)

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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. Bedrock Geology and Structure: Zumbro Watershed Partnership Management Plan, 9/30/2007.

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) (7/30/04). 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. 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.