

Rapid Watershed Assessment

Rum (Wahkon) River (MN) HUC: 07010207



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.

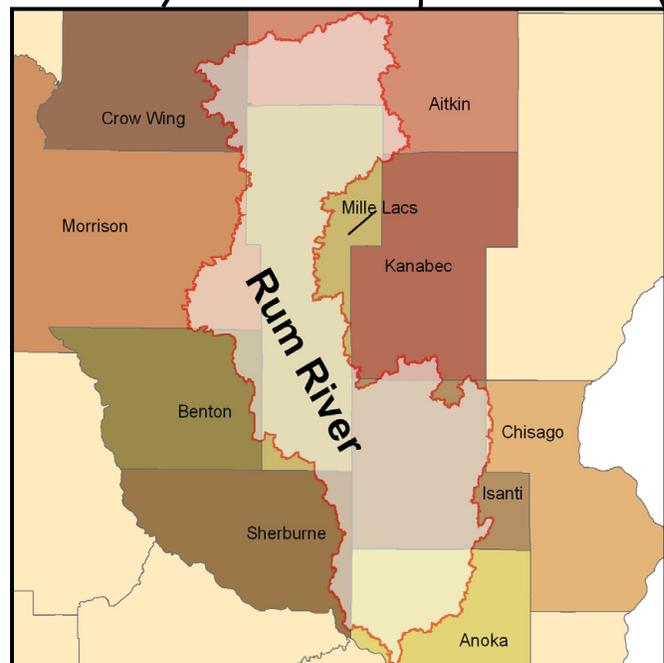
Introduction

The Rum (Wahkon) River 8-Digit Hydrologic Unit Code (HUC) subbasin is located in Minnesota’s Northern Lakes and Forests Ecoregion and the North Central Hardwoods Forest Ecoregion. Approximately ninety one percent of the 997,060 acres in this HUC are privately owned. The remaining acres are owned by county, federal, state or tribal entities.

Assessment estimates indicate 2,153 Farms in the watershed. Approximately sixty nine percent of the operations are less than 180 acres in size, twenty nine percent are from 180 to 1000 acres in size, and the remaining farms are greater than 1000 acres in size. Of the 2,134 operators in the basin, 52% are full time producers not reliant on off farm income.

The main resource concerns in the watershed are Soil Quality, Surface/ drinking Water Quality, Nutrient / Animal Waste Management, Stormwater Management, Sediment and Erosion Control, Groundwater Protection, Water quality and Quantity, and Protection of Shoreland / Riparian Areas.

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, PCBs, excess nutrients) loadings to surface waters.



County Totals

County	Acres in HUC	% HUC
Aitkin	126,998	12.7%
Crow Wing	34,157	3.4%
Morrison	64,294	6.4%
Mille Lacs	359,501	36.1%
Kanabec	12,093	1.2%
Benton	22,671	2.3%
Isanti	237,254	23.8%
Chisago	3,099	0.3%
Sherburne	30,553	3.1%
Anoka	106,441	10.7%
Total acres:	997,060	100%

Physical Description

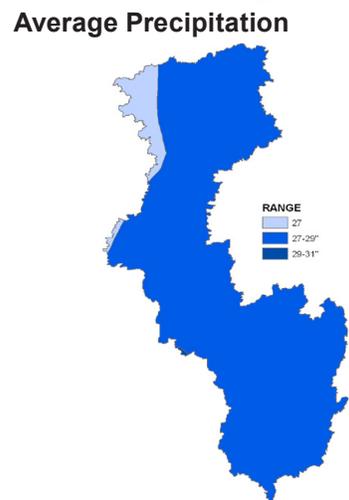
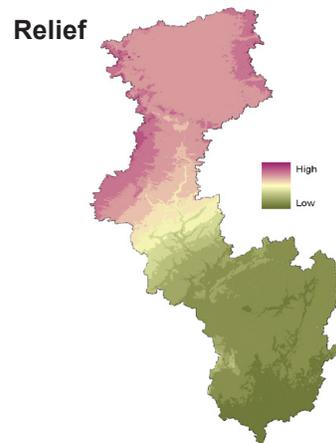
Elevations in the Rum River subbasin range from 1300 to 1400 feet above mean sea level in the upper portions of the watershed, sloping to elevations of 800 to 900 feet around the southern regions nearing the mouth of the watershed.

Precipitation in the watershed ranges from 27 to 31 inches each year. Evaporation estimates are between 36 to 37 inches annually (Minnesota State Climatologists Office, 1999).

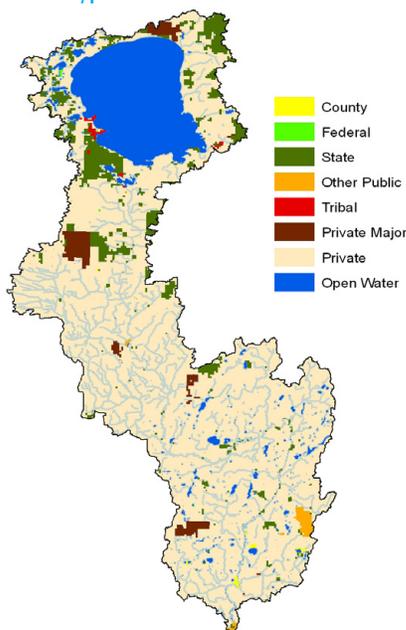
Most lands within this HUC are not considered highly erodible, and are moderately to well suited to agricultural uses. Predominate land uses / land covers are Forest (30.6%), Grass/Pasture/Hay (20.4%), Row Crops (18.1%), Open Water (14.8%), and Wetlands (10.6%),

Land use within the watershed is moderately agricultural, with crop and pasture lands accounting for approximately 38% of the overall watershed acres.

Development pressure is moderate to considerable in many areas, with area farms, timberland, and lakeshore being parceled out for recreation, lake or country homes and expanding suburban populations.



Ownership



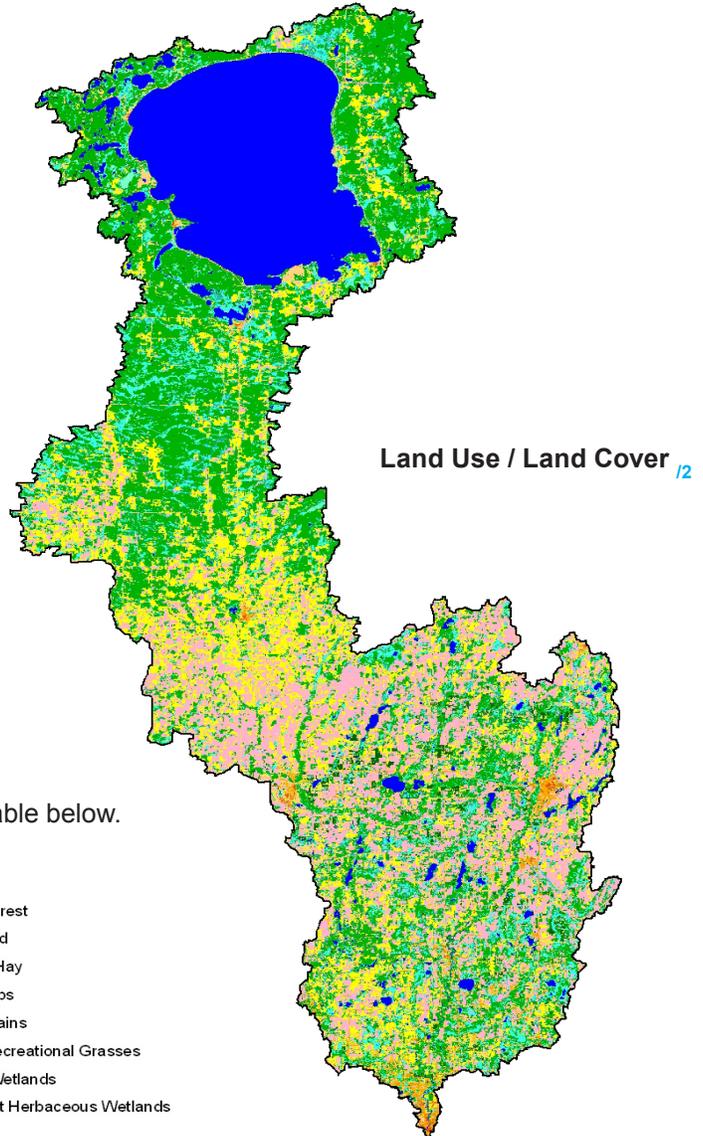
Ownership Type	Acres	% of HUC
Conservancy	-	-
County	1,403	0.1
Federal	283	0.0
State	65,285	6.5
Other Public	5,162	0.5
Tribal	2,128	0.2
Private Major	19,709	2.0
Private	903,089	90.6
Total Acres:	997,060	100

* 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 Rum River watershed covers an area of 997,060 acres. Slightly less than ninety one percent of the land in the watershed is owned by private landholders (903,089 acres). The second largest type is State, with approximately 65,285 acres (6.5%), followed by Private Major with 19,709 acres (2.0%), Misc. Other Public lands amounting to 5,162 acres (0.5%), Tribal with 2,128 acres (0.2%), and County with 1,403 (0.1%). The smallest ownership type is Federal, with 283 acres (0.04%). Existing ownership data shows no major conservancy land holdings in the region.

Land use by ownership type is represented in the table below.



Ownership / Land Use ¹³

Landcover/Use	Public		Private**		Tribal		Total Acres	Percent	
	Acres	% Public	Acres	% Private	Acres	% Tribal			
Forest	47,793	4.8%	255,930	25.7%	1,257	0.1%	304,981	30.6%	
Grass, etc	4,073	0.4%	198,877	19.9%	76	0.0%	203,026	20.4%	
Orchards	0	0.0%	0	0.0%	0	0.0%	0	0.0%	
Row Crops	1,605	0.2%	179,298	18.0%	29	0.0%	180,933	18.1%	
Shrub etc	110	0.0%	2,022	0.2%	0	0.0%	2,133	0.2%	
Wetlands	14,486	1.5%	91,024	9.1%	353	0.0%	105,863	10.6%	
Residential/Commercial	2,103	0.2%	50,344	5.0%	275	0.0%	52,722	5.3%	
Open Water*	1,861	0.2%	145,427	14.6%	137	0.0%	147,426	14.8%	
* ownership undetermined		** includes private-major							
Watershed Totals:	72,032	7.22%	922,924	92.6%	2,128	0.2%	997,084	100%	

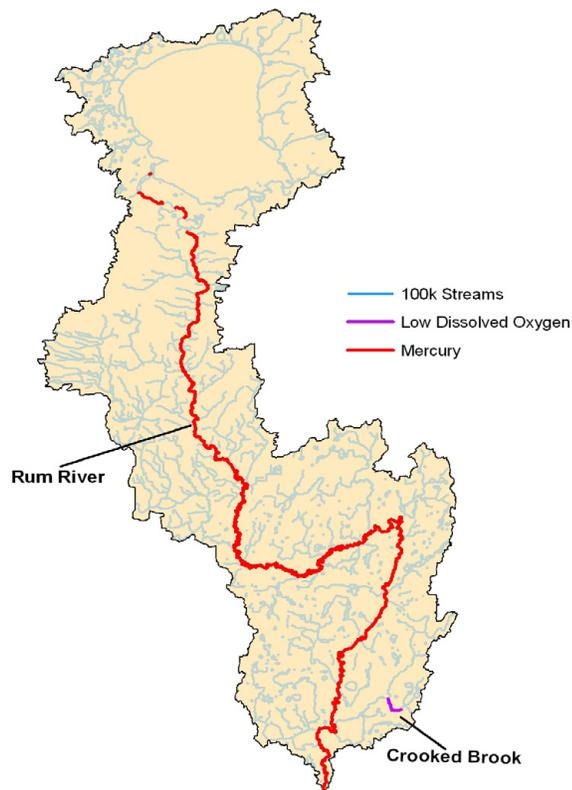
Physical Description (continued)

		ACRES	cu. ft/sec	
Stream Flow Data	USGS 05286000 RUM RIVER NEAR ST. FRANCIS, MN	Total Avg.	847.3	
		May – Sept. Yield	3,173	
		MILES	PERCENT	
Stream Data¹⁴ (*Percent of Total HUC Stream Miles)	Total Miles – Major (100K Hydro GIS Layer)	1,655.6	---	
	303d/TMDL Listed Streams (DEQ)	156.5	9.5%	
Riparian Land Cover/Land Use¹⁵ (Based on a 100-foot buffer on both sides of all streams in the 100K Hydro GIS Layer)	Land Use Type	Acres	Percent	
	Forest	11,981	30.2%	
	Grass, etc	7,309	18.4%	
	Orchards	0	0.0%	
	Row Crops	4,152	10.5%	
	Shrub etc	90	0.2%	
	Wetlands	9,912	25.0%	
	Residential/Commercial	1,242	3.1%	
	Open Water	5,039	12.7%	
		Total Buffer Acres:	39,725	100%
Crop and Pastureland Land Capability Class¹⁶ (Croplands & Pasturelands Only) (1997 NRI Estimates for Non-Federal Lands Only)	1 – slight limitations	10,600	3%	
	2 – moderate limitations	174,600	46%	
	3 – severe limitations	61,300	16%	
	4 – very severe limitations	77,100	20%	
	5 – no erosion hazard, but other limitations	2,500	1%	
	6 – severe limitations; unsuitable for cultivation; limited to pasture, range, forest	53,500	14%	
	7 – very severe limitations; unsuitable for cultivation; limited to grazing, forest, wildlife habitat	1,800	0.47%	
	8 – miscellaneous areas; limited to recreation, wildlife habitat, water supply	500	0.13%	
		Total Croplands & Pasturelands	381,900	---
	TYPE OF LAND	ACRES	% of Crop Lands	% of HUC
Irrigated Lands¹⁷ (1997 NRI Estimates for Non- Federal Lands Only)	Cultivated Cropland / Pastureland	500	0.13%	0.05%
	Uncultivated Cropland	0	0%	0%
	Total Irrigated Lands	500	0.13%	0.05%

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.

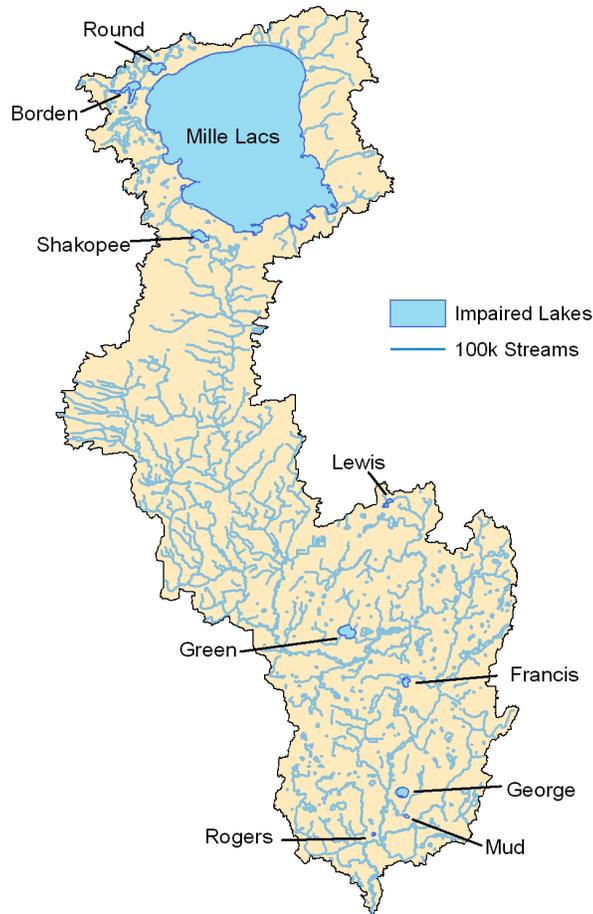
2006 Minnesota 303d Listed Streams - Rum River Watershed



Listed Stream / Reach ⁸	Impairment	Affected Use
Rum River Cedar Cr to Trott Brook	Mercury	Aquatic Consumption
Rum River Seelye Bk to Cedar Cr	Mercury	Aquatic Consumption
Rum River Stanchfield Cr to Seelye Brook	Mercury	Aquatic Consumption
Rum River Headwaters (Mille Lacs Lk) to Ogechie Lk	Mercury	Aquatic Consumption
Rum River Lk Onamia to Tibbetts Bk	Mercury	Aquatic Consumption
Rum River Tibbetts Bk to Bogus Bk	Mercury	Aquatic Consumption
Rum River Bogus Bk to W Br Rum R	Mercury	Aquatic Consumption
Rum River W Br Rum R to Stanchfield Cr	Mercury	Aquatic Consumption
Rum River Trott Cr to Madison/Rice St in Anoka	Mercury	Aquatic Consumption
Rum River Madison/Rice St in Anoka to Mississippi R	Mercury	Aquatic Consumption
Crooked Brook CD 28 to Cedar Cr	Low Dissolved Oxygen	Aquatic Life
Rum River Ogechie Lk to Shakopee Lk	Mercury	Aquatic Consumption
Rum River Shakopee Lk to Lk Onamia	Mercury	Aquatic Consumption

Assessment of Waters (continued)

2006 Minnesota 303d Listed Lakes - Rum River Watershed



Listed Lake	Impairment	Affected Use
Round	Mercury	Aquatic Consumption
George	Mercury	Aquatic Consumption
Mud	Excess nutrients	Aquatic Recreation
Rogers	Excess nutrients	Aquatic Recreation
Borden	Mercury	Aquatic Consumption
Francis	Excess nutrients	Aquatic Recreation
Green	Mercury, PCBs	Aquatic Consumption
Lewis	Mercury	Aquatic Consumption
Mille Lacs	Mercury	Aquatic Consumption
Shakopee	Mercury	Aquatic Consumption

Common Resource Areas

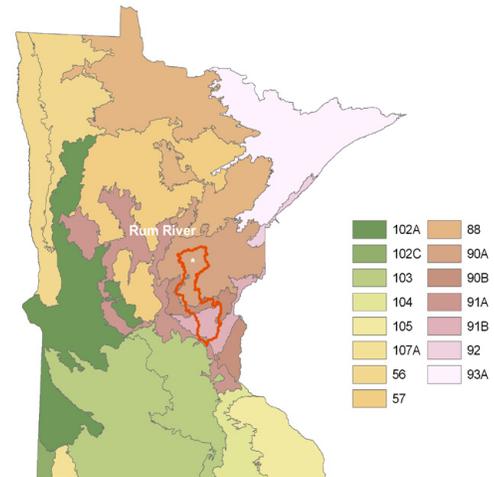
Rum River Watershed encompasses four common resource areas, 91A.1, 91B.1, 90A.1 and 90B.1. ¹⁹

91A.1 Central Minnesota Outwash: Nearly level to gently sloping well drained sandy soils on outwash plains and stream terraces. There are also numerous poorly and very poorly drained mineral and organic soils. Irrigated crop land, pasture and hayland are the major land uses. Forestland is common in parts. Corn, soybeans, edible beans and potatoes are the primary irrigated crops. Forage crops are also extensively grown. Resource concerns are wind erosion water quality, nutrient management, improperly managed grazing.

91B.1 Anoka Sand Plain and Northwest Wisconsin Outwash: Gently sloping to moderately steep outwash plains and moraines. Soils range from excessively drained sandy soils to very poorly drained organic soils. Mostly deciduous and coniferous forestland, pasture with more cropland in the western part. The primary resource concerns are forestland productivity, erosion control on cropland and timbered areas during harvest, upland wildlife habitat management, and recreation.

90A.1 Loamy Till Ground Moraines and Drumlins: Nearly level to moderately steep, loamy, sandy, and organic soils. Mixed deciduous and coniferous forest is the primary land use with some glacial lakes and wetlands. Scattered cropland and grazing land are present. Cropland productivity is limited by the short length of the growing season. Primary resource concerns are timber management, wildlife habitat, recreation and agricultural forage production. Surface water quality is a localized concern.

90B.1 Dense Till Ground Moraine: Nearly level and gently sloping moderately well and somewhat poorly drained loamy soils underlain by loamy glacial residuum and bedrock. Mostly cropland and grazing land, with areas of mixed deciduous and coniferous forest, wetlands, and a few lakes. Dairy and beef production with some cash grain are the primary agricultural enterprises. Primary resource concerns include nutrient management, cropland soil erosion, grazing land productivity, and forestry management.



Only the major CRA units are described above.

For further information, go to:

<http://soils.usda.gov/survey/geography/cra.html>

Geology / Soils ¹⁰

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, and Precambrian crystalline rocks in the upper watershed. The upper watershed lies in the Superior Lobe association of siliceous glacial deposits, with the lower watershed lying in the Des Moines Lobe association of calcareous glacial deposits. The Superior Lobe left siliceous and sandy deposits, while the Des Moines Lobe left clay-rich calcareous deposits containing fragments of limestone and shale.

Soils in the upper watershed are mainly alfisols mixed with histosols. Alfisols 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 and cropland areas. Histosols consist of yellowbrown to black organic-rich soils generally formed in wetlands. Soils in the lower watershed are mainly entisols, which are recently formed soils that form on sandy soils in areas of sandy glacial outwash or alluvium.

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

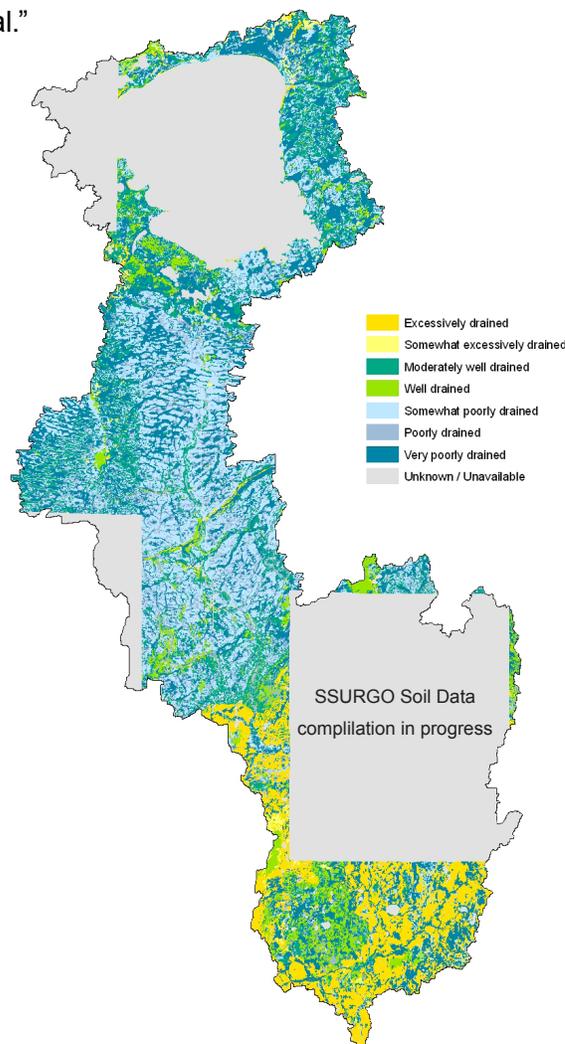
<http://soildatamart.usda.gov> to download SSURGO

 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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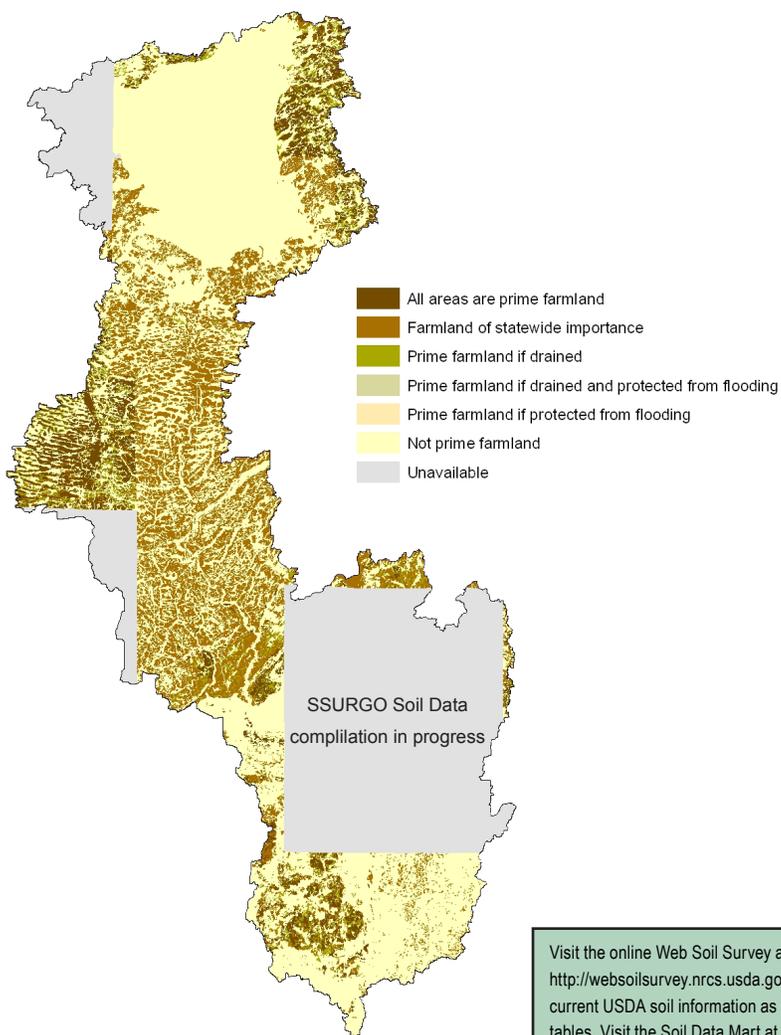
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Farmland Classification

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.



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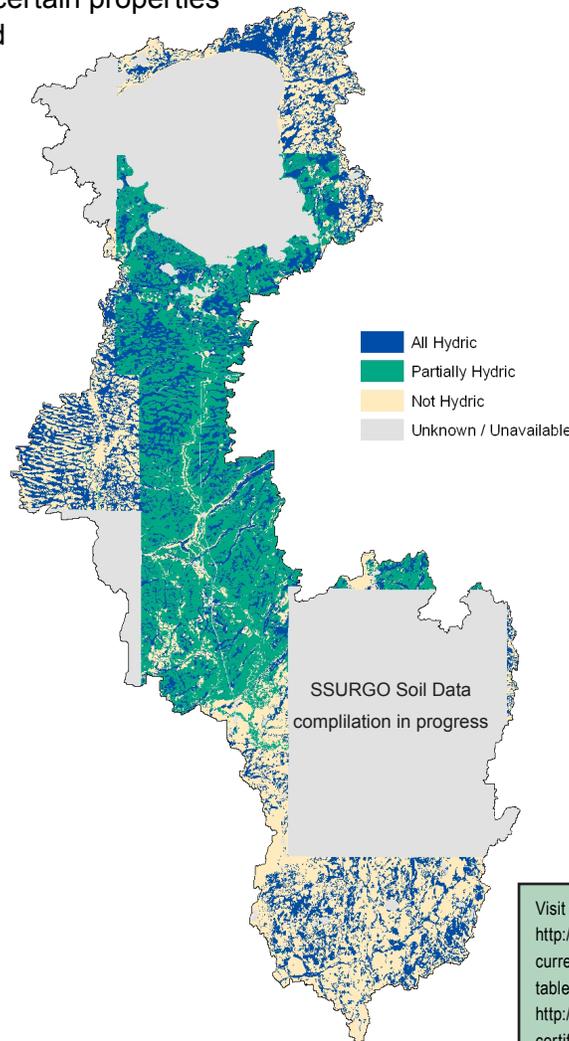
 certified soil tabular and spatial data.

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.

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.



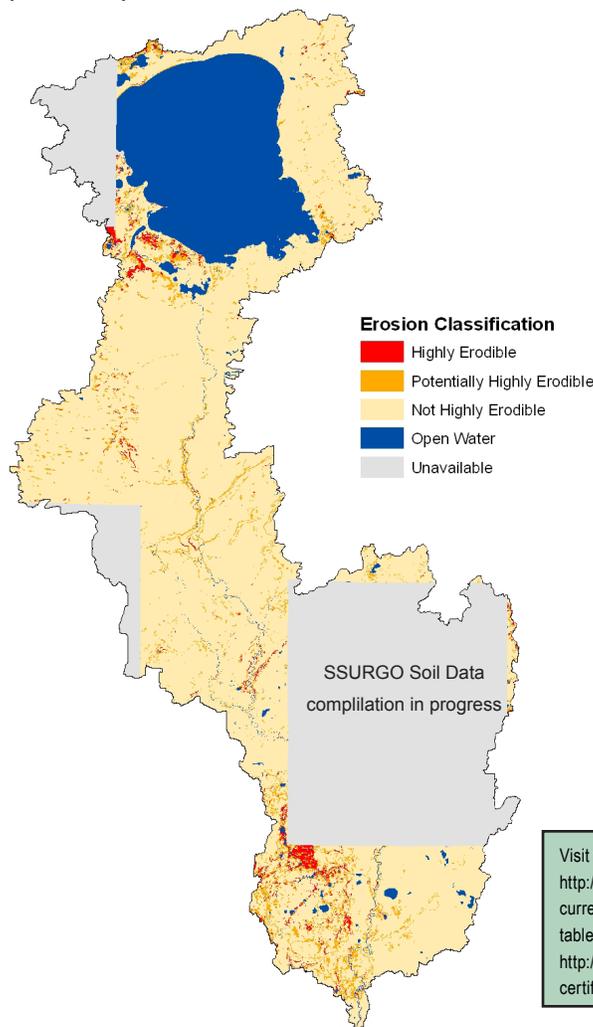
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Highly Erodible Land (HEL)

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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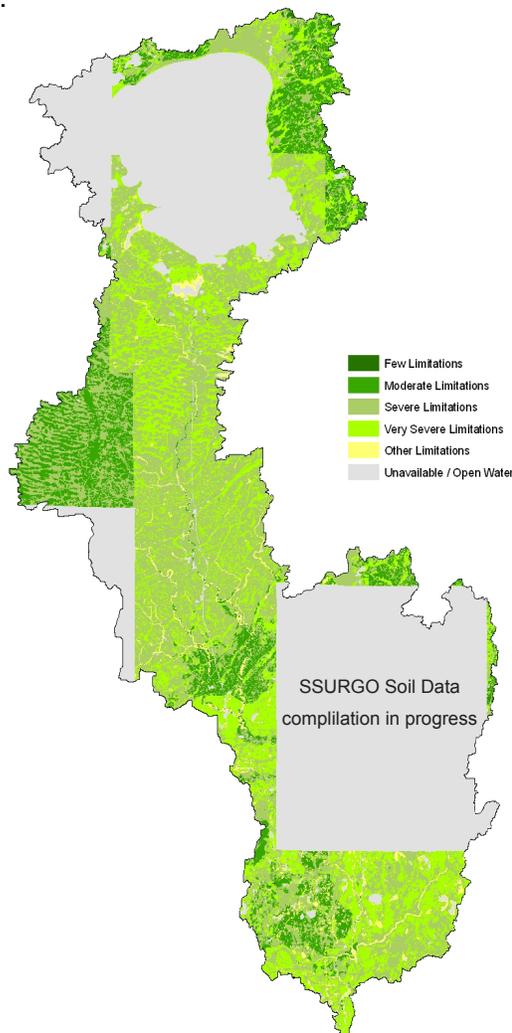
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Land Capability Classification

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: Rum (Wahkon)				Watershed Number: 07010207						
PRS Performance Measures	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	TOTAL
Total Conservation Systems Planned (acres)	552	5,622	0	1,992	7,892	N/A	6,608	10,444	5,016	38,126
Total Conservation Systems Applied (acres)	363	3,498	0	2,457	2,457	N/A	6,793	8,229	6,686	30,483
Conservation Practices										
Total Waste Management (313) (numbers)	0	1	1	1	1	0	0	0	0	4
Riparian Forest Buffers (391) (acres)	0	38	62	160	221	17	10	2	4	514
Erosion Control Total Soil Saved (tons/year)	391	39,370	6,181	6,046	16,792	N/A	N/A	N/A	N/A	68,780
Total Nutrient Management (590) (Acres)	0	1,188	941	1,236	2,464	218	1,231	1,231	1,434	9,943
Pest Management Systems Applied (595A) (Acres)	0	0	0	74	43	0	171	279	131	698
Prescribed Grazing 528a (acres)	0	331	395	125	709	239	10	31	31	1,871
Tree & Shrub Establishment (612) (acres)	5	508	131	270	147	26	29	77	11	1,204
Residue Management (329A-C) (acres)	0	1,279	781	0	2,453	1,007	1,007	5,520	2,700	14,747
Total Wildlife Habitat (644 - 645) (acres)	358	1,502	1,104	1,513	1,866	667	1,513	993	1,421	10,937
Total Wetlands Created, Restored, or Enhanced (acres)	8	122	62	36	20	63	0	55	4	370
Acres enrolled in Farmbill Programs										
Conservation Reserve Program	363	2,073	363	705	896	N/A	92	479	60	5,031
Wetlands Reserve Program	0	13	0	0	0	N/A	0	0	0	13
Environmental Quality Incentives Program	357	2,470	631	1,369	4,175	N/A	4,715	5,918	5,107	24,742
Wildlife Habitat Incentive Program	357	1,381	0	40	0	N/A	28	19	111	1,936
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	Scientific Name	Common Name	Type
<i>Acipenser fulvescens</i>	Lake Sturgeon	Zoological	<i>Juglans cinerea</i>	Butternut	Botanical
<i>Ammodramus henslowii</i>	Henslow's Sparrow	Zoological	<i>Lasmigona compressa</i>	Creek Heelsplitter	Zoological
<i>Aristida tuberculosa</i>	Sea-beach Needlegrass	Botanical	<i>Ligumia recta</i>	Black Sandshell	Zoological
<i>Baptisia alba</i>	White Wild Indigo	Botanical	<i>Metaphidippus arizonensis</i>	A Jumping Spider	Zoological
<i>Bartonia virginica</i>	Virginia Bartonia	Botanical	<i>Najas gracillima</i>	Thread-like Naiad	Botanical
<i>Botrychium lanceolatum</i>	Triangle Moonwort	Botanical	<i>Notropis anogenus</i>	Pugnose Shiner	Zoological
<i>Botrychium mormo</i>	Goblin Fern	Botanical	<i>Oenothera rhombipetala</i>	Rhombic-petaled Evening Primrose	Botanical
<i>Botrychium oneidense</i>	Blunt-lobed Grapefern	Botanical	<i>Panax quinquefolius</i>	American Ginseng	Botanical
<i>Botrychium rugulosum</i>	St. Lawrence Grapefern	Botanical	<i>Paradamoetas fontana</i>	A Jumping Spider	Zoological
<i>Botrychium simplex</i>	Least Moonwort	Botanical	<i>Perognathus flavescens</i>	Plains Pocket Mouse	Zoological
<i>Buteo lineatus</i>	Red-shouldered Hawk	Zoological	<i>Pituophis catenifer</i>	Gopher Snake	Zoological
<i>Carex woodii</i>	Wood's Sedge	Botanical	<i>Platanthera flava</i> var. <i>herbiola</i>	Tuberclad Rein-orchid	Botanical
<i>Clemmys insculpta</i>	Wood Turtle	Zoological	<i>Poa paludigena</i>	Bog Bluegrass	Botanical
<i>Coturnicops noveboracensis</i>	Yellow Rail	Zoological	<i>Polygala cruciata</i>	Cross-leaved Milkwort	Botanical
<i>Cypripedium arietinum</i>	Ram's-head Lady's-slipper	Botanical	<i>Potamogeton bicupulatus</i>	Snailseed Pondweed	Botanical
<i>Decodon verticillatus</i>	Waterwillow	Botanical	<i>Potamogeton vaseyi</i>	Vasey's Pondweed	Botanical
<i>Dendroica cerulea</i>	Cerulean Warbler	Zoological	<i>Rotala ramosior</i>	Tooth-cup	Botanical
<i>Emydoidea blandingii</i>	Blanding's Turtle	Zoological	<i>Scirpus clintonii</i>	Clinton's Bulrush	Botanical
<i>Etheostoma microperca</i>	Least Darter	Zoological	<i>Scleria triglomerata</i>	Tall Nut-rush	Botanical
<i>Fimbristylis autumnalis</i>	Autumn Fimbristylis	Botanical	<i>Seiurus motacilla</i>	Louisiana Waterthrush	Zoological
<i>Floerkea proserpinacoides</i>	False Mermaid	Botanical	<i>Sterna hirundo</i>	Common Tern	Zoological
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Zoological	<i>Tsuga canadensis</i>	Eastern Hemlock	Botanical
<i>Hemidactylium scutatum</i>	Four-toed Salamander	Zoological	<i>Tutelina formicaria</i>	A Jumping Spider	Zoological
<i>Heterodon nasicus</i>	Western Hognose Snake	Zoological	<i>Viola lanceolata</i>	Lance-leaved Violet	Botanical
<i>Hydrocotyle americana</i>	American Water-pennywort	Botanical	<i>Wilsonia citrina</i>	Hooded Warbler	Zoological

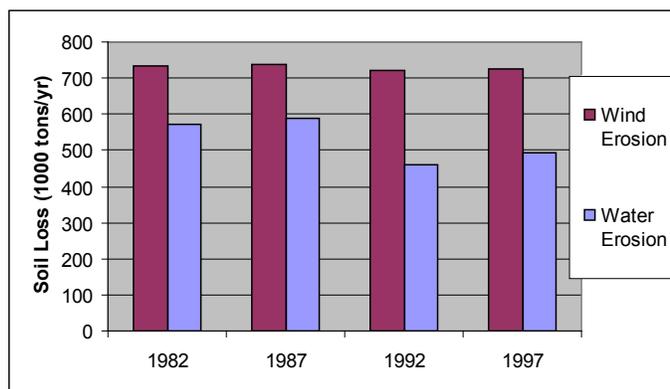
RESOURCE CONCERNS

There have been rapid increases in development in much of the watershed in the past decade. Increasing development pressures and the contrariant needs of farming and residential / commercial development are exacerbating resource concerns in the area. With this in mind, 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 Sheet & Rill Erosion.** Soil Erosion and Deposition has ranked as a top concern in each county in relation to both soil quality and surface water quality, and plays directly into additional concerns over nutrient management.
- Nutrient / 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. There are increasing concentrations of Phosphorous, Nitrogen, and chloride in many area waterways and water bodies. Setback of open tile intakes and placement of waste systems in high priority riparian areas and areas with course grained soils will greatly reduce the effects of agricultural and development activities on area waters.
- Stormwater Management.** Local districts recognize that runoff volume will likely increase as development of the watershed continues. Districts seek to require that peak runoff rates be kept below the capacity of downstream conveyance facilities through the use of retention facilities. Runoff is increasing in both developing and developed areas of the watershed. Priority actions include identification of sites where storm water discharge has a high potential adversely affecting important natural resources.
- Sediment and Erosion Control.** Working hand-in-hand with stormwater pollution and prevention plans, counties in the watershed seek to minimize disturbances and prevent properties and waterbodies from receiving sediment deposits resulting in water quality degradation both directly and through transport of pollutants.
- Groundwater Protection, Water quality and Quantity.** County and watershed conservation groups seek to protect and improve groundwater quality throughout the subbasin. Aging septic systems, abandoned wells, and historical tiling practices all threaten public drinking water supplies. Increase extraction from shallow upper aquifers vs. deeper, more plentiful fractured bedrock is affecting both water quantity and quality.
- Protection of Shoreland / Riparian Areas.** Relevant to all area waterbodies, but particularly Mille Lacs lake, which is especially vulnerable to shoreline erosion from wave and ice action. Vegetative buffers and shoreland stabilization management practices must be employed to reach sustainable erosion rates to protect these valuable and threatened waters and landscapes.

NRI Erosion Estimates ¹³

- Sheet and rill erosion by water on the cropland and pastureland decreased by approximately 77,900 tons (13.61%) of soil between 1982 and 1997.
- NRI estimates indicate wind erosion rates decreased by 8,500 tons (1.16%) between 1982 and 1997.



Socioeconomic and Agricultural Data (Relevant)

Estimations for the Rum River subbasin indicate a current population of 110,366 people. Median household income throughout the district is approximately \$52,689 annually, roughly 114% of the national average. Unemployment is estimated at 5.2% and approximately 8% of the residents in the watershed are below the national poverty level.



Assessment estimates indicate 2,153 Farms in the watershed. Approximately sixty nine percent of the operations are less than 180 acres in size, twenty nine percent are from 180 to 1000 acres in size, and the remaining farms are greater than 1000 acres in size. Of the 2,134 operators in the basin, 52% are full time producers not reliant on off farm income.

(MN) HUC# 7010207		Total Acres:	997,060
Population Data*	Watershed Population	110,366	
	Unemployment Rate	5.2%	
	Median Household Income	52,689	
	% below poverty level	8%	
	Median Value of Home	107,910	
Farms	# of Farms	2,153	
	# of Operators	2,134	Percent
	# of Full Time Operators	1,109	52%
	# of Part Time Operators	1,026	48%
	Total Crop/Pasturelands:	381,900	38.3%
Farm Size	1 to 49 Acres	284	32%
	50 to 179 Acres	336	37%
	180 to 499 Acres	211	23%
	500 to 999 Acres	50	6%
	1,000 Acres or more	19	2%
Livestock & Poultry	Cattle - Beef	8,706	2%
	Cattle - Dairy	8,347	2%
	Chicken	104,929	22%
	Swine	12,688	3%
	Turkey	102,947	21%
	Other	245,167	51%
	Animal Count Total:	482,783	
	Total Permitted AFOs:	313	
Chemicals (Acres Applied)	Insecticides	23,256	
	Herbicides	110,487	
	Wormicides	1,185	
	Fruiticides	1,747	
	Total Acres Treated	136,674	
	% State Chemical Totals	1.0%	

* 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

- **Special Investigation: Ditch 6 Water Quality**
Anoka County SWCD, Lower Rum WMO
- **Big Sandy Area Lakes Watershed Mgmt Project**
MN DNR, MPCA, BWSR, US Army COE, FWS, NRCS
- **Rum River River Watch**
Princeton Public Schools
- **Agricultural Land Buffer Incentive Program**
Minnesota Department of Agriculture
- **Green Lake Diagnostic CWP Feasibility Study**
Isanti County SWCD.
- **Metro Trout Stream WS Protection Initiative**
MN DNR, Area groups and Volunteers
- **Ditch 66: Pollution Source Inventory**
Anoka County SWCD, Lower Rum WMO
- **Rum River Forest Class. & Motor Rte Designation**
MN Department of Natural Resources
- **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
- **Mississippi River Env. Management Program**
US Army Corps of Engineers

* 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

- **Anoka County SWCD**
16015 Central Ave NE Ham Lake, MN 55304
Phone (763) 434-2030
- **Aitkin County SWCD**
130 Southgate Dr, Aitkin, MN 56431
Phone (218) 927-6565
- **Benton County SWCD**
14 Second Ave W, Foley, MN 56329
Phone (320) 968-5300
- **Chisago County SWCD**
38814 Third Ave, North Branch, MN 55056
Phone (651) 674-2333
- **Crow Wing County SWCD**
7118 Clearwater Rd, Baxter, MN 56425
Phone (218) 828-6197
- **Isanti County SWCD**
380 Garfield St S, Cambridge, MN 55008
Phone (763) 689-3224
- **Kannabec County SWCD**
2008 Mahogany St Ste 3, Mora, MN 55051
Phone (320) 679-3982
- **Mille Lacs County SWCD**
900 Hwy 23 W, Milaca, MN 56353
Phone (320) 983-2160
- **Morrison County SWCD**
16776 Heron Rd, Little Falls, MN 56345
Phone (320) 616-2479
- **Sherburne County SWCD**
14855 Hwy 10, Elk River, MN 55330
Phone (763) 241-1170
- **Upper Rum River Watershed Management Organization**
Phone (763) 286-6085
- **Lower Rum River Watershed Management Organization**
Phone (763) 755-5100
- **Friends of the Mississippi River**
360 N Robert St Saint Paul, MN 55101
Phone (651) 222-2193
- **Friends of the Rum River Nature Area**
3532 Rum River Drive, Anoka MN 55303
Phone (763) 427-2779
- **Rum River River Watch - Princeton Pub Schools**
706 1st Street Princeton, Minnesota 55371
Phone (612) 389-6172
- **Trout Unlimited Twin Cities Chapter**
PO Box 390207
Edina, MN 55439-0207

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)

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 (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.