

Rapid Watershed Assessment

Crow River (Upper Fork)

(MN) HUC: 07010204



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 Crow River (Upper Fork) 8-Digit Hydrologic Unit Code (HUC) subbasin is located within the North Central Hardwood Forest Ecoregion of Minnesota near the border of the adjacent Western Cornbelt Plains Ecoregion. Approximately ninety six percent of the 949,107 acres in this HUC are privately owned. The remaining acres are County, Federal, State or Conservancy lands.

Assessment estimates indicate 2,864 Farms in the watershed. Approximately sixty three percent of the operations are less than 180 acres in size, thirty three percent are from 180 to 1000 acres in size, and the remaining farms are greater than 1000 acres in size. Of the 2,868 Operators in the basin, sixty 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, ammonia, excess nutrients) loadings to surface waters.



County Totals

County	Acres in HUC	% HUC
Stearns	151,564	16.0%
Pope	35,271	3.7%
Kandiyohi	152,204	16.0%
Wright	301,065	31.7%
Meeker	269,582	28.4%
Hennepin	28,916	3.0%
McLeod	9,515	1.0%
Carver	988	0.1%
Total acres:	949,107	100%

Physical Description

Elevations in the upper portions of the Crow watershed range from 1300-1400 feet above mean sea level, sloping to elevations of 800-900 feet at the mouth of the watershed.

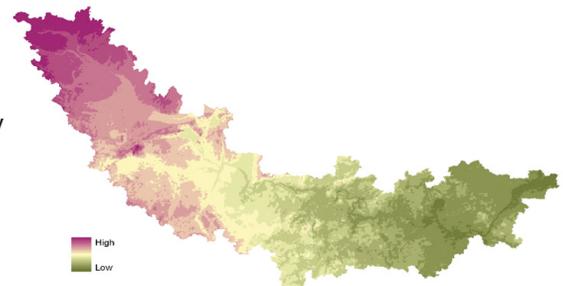
Precipitation in the watershed ranges from 25 to 29 inches each year. Evaporation estimates are between 36 to 37 inches annually (Minnesota State Climatologists Office, 1999).

Most lands within this HUC are not highly erodible, and are moderately to well suited to agricultural uses. Soils in the upper portions of the watershed are the most agriculturally productive soils in the Upper Mississippi River Basin. Predominate land uses / land covers are Row Crops (55.4%), Grass/Pasture/Hay (17.5%), Forest (8.3%), and Open Water (6.8%).

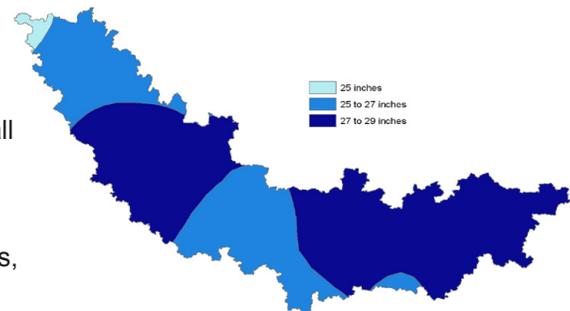
Land use within the watershed is largely agricultural, with crop and pasture lands accounting for approximately 63% of the overall watershed acres.

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

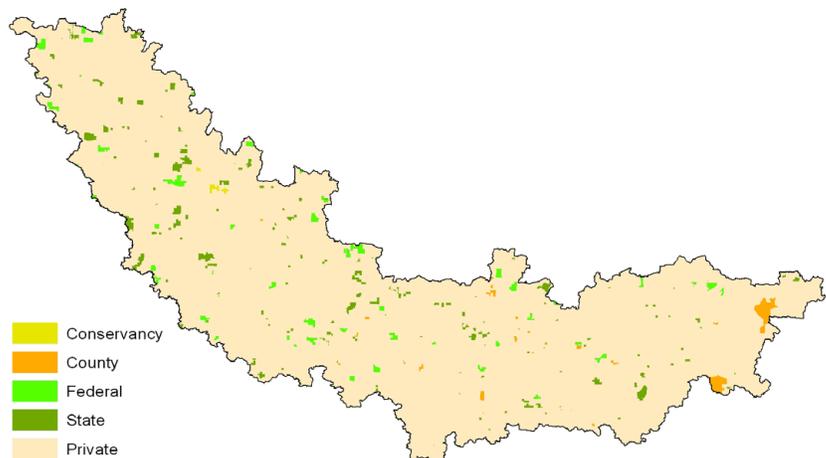


Average Precipitation



Ownership

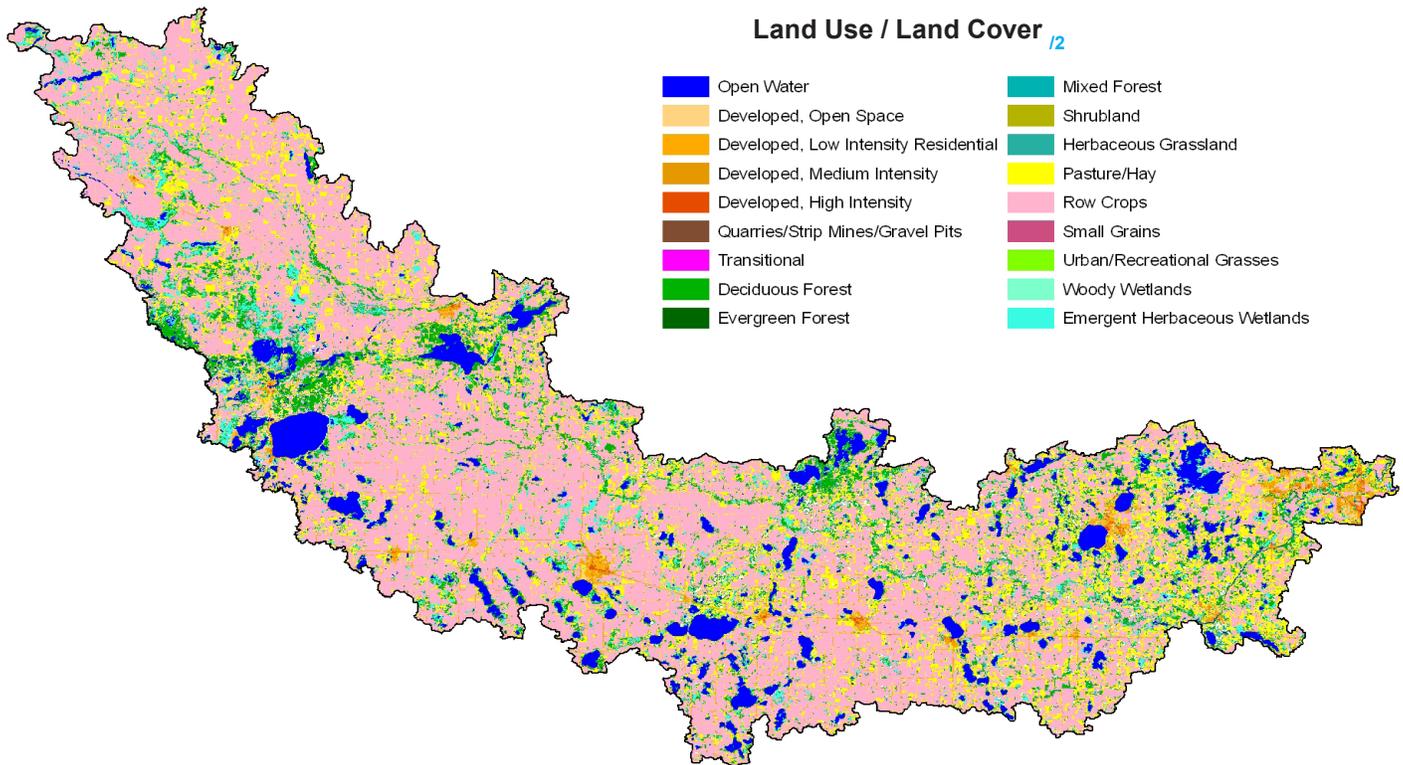
Ownership Type	Acres	% of HUC
Conservancy	669	0.1
County	5,803	0.6
Federal	10,967	1.2
State	16,339	1.7
Other	-	-
Tribal	-	-
Private Major	-	-
Private	915,328	96.4
Total Acres:	949,107	100



* 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 Crow watershed covers an area of 949,107 acres. Slightly more than ninety six percent of the land in the watershed is owned by private landholders (915,328 acres). The second largest ownership type is State, with approximately 16,340 acres (1.7%), followed by Federal with 10,967 acres (1.2%), County with 5,803 acres (0.6%), and Conservancy with 669 acres (0.1%). Existing ownership data shows no Tribal or Private Major land holdings in the basin. Land use by ownership type is represented in the table below.



Ownership / Land Use ^{/3}

Landcover/Use	Public		Private**		Tribal		Total Acres	Percent	
	Acres	% Public	Acres	% Private	Acres	% Tribal			
Forest	5,566	0.6%	73,023	7.7%	0	0.0%	78,589	8.3%	
Grass, etc	6,527	0.7%	160,378	16.9%	0	0.0%	166,905	17.6%	
Orchards	0	0.0%	0	0.0%	0	0.0%	0	0.0%	
Row Crops	9,962	1.0%	515,665	54.3%	0	0.0%	525,628	55.4%	
Shrub etc	965	0.1%	12,968	1.4%	0	0.0%	13,933	1.5%	
Wetlands	5,880	0.6%	36,610	3.9%	0	0.0%	42,490	4.5%	
Residential/Commercial	1,196	0.1%	55,964	5.9%	0	0.0%	57,160	6.0%	
Open Water*	2,990	0.3%	61,419	6.5%	0	0.0%	64,409	6.8%	
* ownership undetermined		** includes private-major							
Watershed Totals:	33,087	3.49%	916,027	96.5%	0	0.0%	949,107	100%	

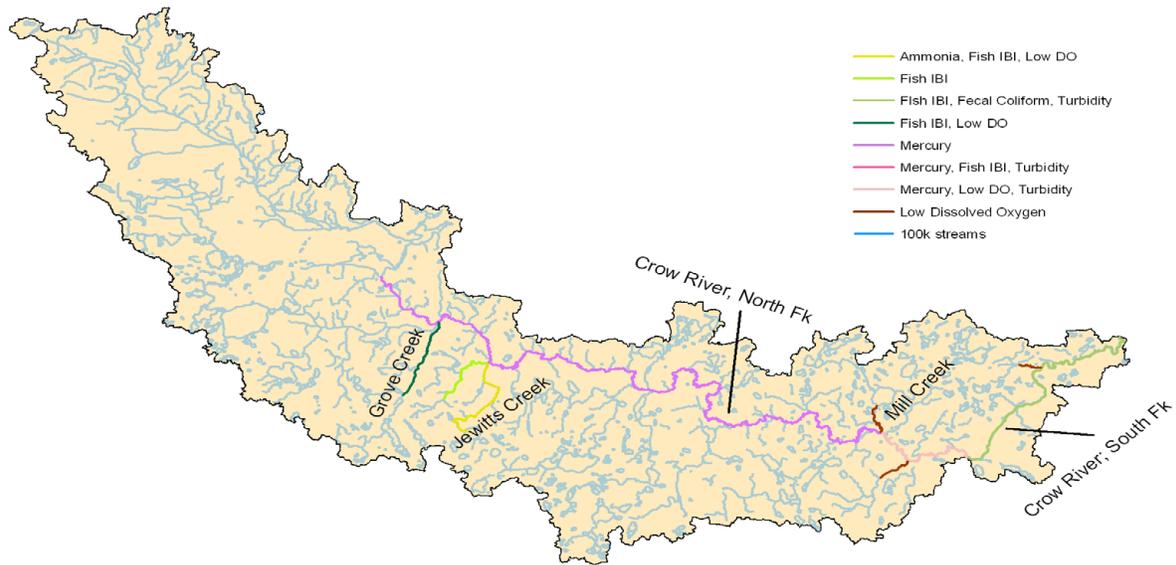
Physical Description (continued)

		ACRES	cu. ft/sec		
Stream Flow Data	USGS 05280000 CROW RIVER AT ROCKFORD, MN	Total Avg.	1,399		
		May – Sept. Yield	5,041		
		MILES	PERCENT		
Stream Data¹⁴ (*Percent of Total HUC Stream Miles)	Total Miles – Major (100K Hydro GIS Layer)	1,983.1	---		
	303d/TMDL Listed Streams (DEQ)	163.6	11%		
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	8,531	17.9%		
	Grain Crops	0	0.0%		
	Grass, etc	7,675	16.1%		
	Orchards	0	0.0%		
	Row Crops	12,822	26.8%		
	Shrub etc	881	1.8%		
	Wetlands	6,270	13.1%		
	Residential/Commercial	1,614	3.4%		
	Open Water	9,965	20.9%		
		Total Buffer Acres:	47,758	100%	
Crop and Pastureland Land Capability Class¹⁶ (Croplands & Pasturelands Only) (1997 NRI Estimates for Non-Federal Lands Only)	1 – slight limitations	39,500	6%		
	2 – moderate limitations	287,700	46%		
	3 – severe limitations	243,900	39%		
	4 – very severe limitations	14,900	2%		
	5 – no erosion hazard, but other limitations	2,800	0.004%		
	6 – severe limitations; unsuitable for cultivation; limited to pasture, range, forest	30,200	5%		
	7 – very severe limitations; unsuitable for cultivation; limited to grazing, forest, wildlife habitat	4,600	1%		
	8 – miscellaneous areas; limited to recreation, wildlife habitat, water supply	6,700	1%		
		Total Croplands & Pasturelands	630,600	---	
		TYPE OF LAND	ACRES	% of Crop Lands	% of HUC
Irrigated Lands¹⁷ (1997 NRI Estimates for Non- Federal Lands Only)	Cultivated Cropland / Pastureland	56,200	9%	5.9%	
	Uncultivated Cropland	0	0%	0%	
	Total Irrigated Lands	56,200	9%	5.9%	

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.

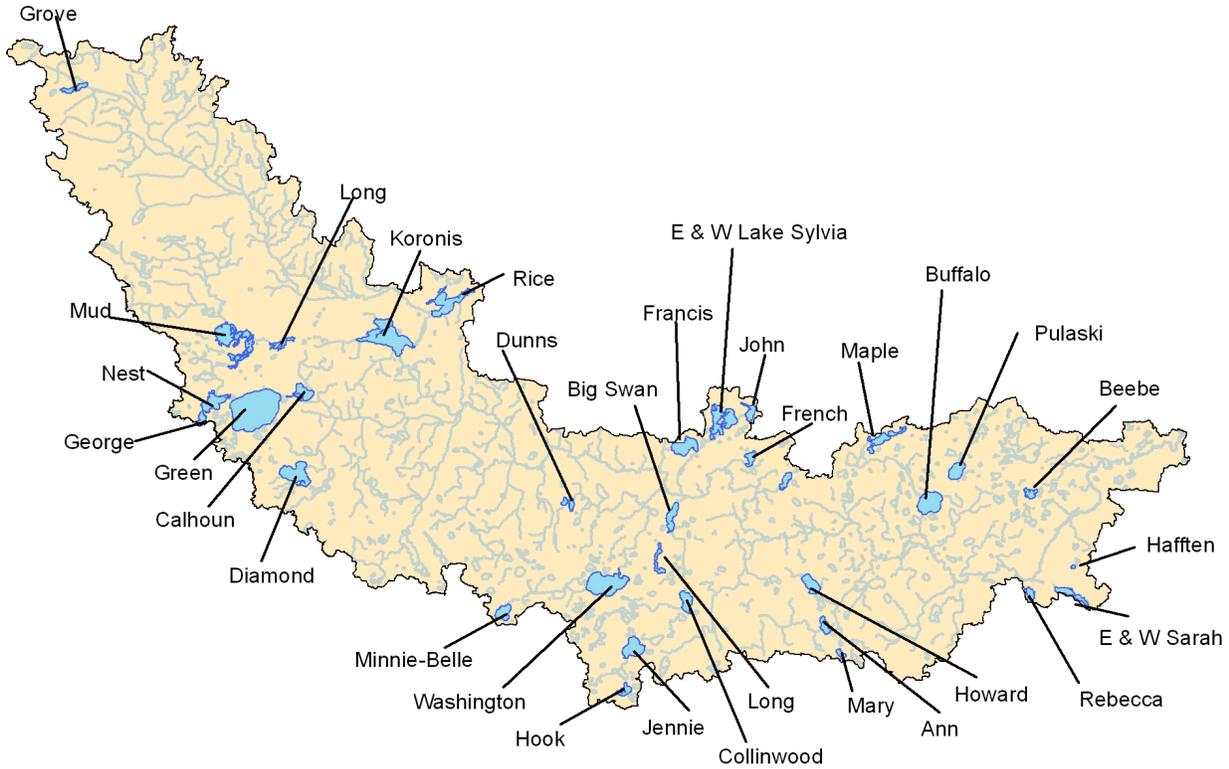
2006 Minnesota 303d Listed Streams - Crow Watershed



Listed Stream	Impairment	Affected Use
Crow River S Fk Crow R to Mississippi R	B-F, FC, T	Aquatic Life and Aquatic Recreation
Crow River, North Fork Mill Cr to S Fk Crow R	DO, Hg, T	Aquatic Consumption and Aquatic Life
Crow River, North Fork Lk Koronis to Middle Fk Cro	B-I, Hg	Aquatic Consumption and Aquatic Life
Crow River, North Fork Jewitts Cr to Washington C	Hg	Aquatic Consumption
Crow River, North Fork Middle Fk Crow R to Jewitts	Hg	Aquatic Consumption
Crow River, North Fork Headwaters (Grove Lk) to Lk	Hg	Aquatic Consumption
Grove Creek Unnamed Cr to N Fk Crow R	B-FI, DO	Aquatic Life
Mill Creek Buffalo Lk to N Fk Crow R	DO	Aquatic Life
Unnamed creek Unnamed Ditch to N Fk Crow R	DO	Aquatic Life
Unnamed creek Unnamed Cr to Crow R	DO	Aquatic Life
Unnamed creek Unnamed Cr to Unnamed Cr	B-I	Aquatic Life
Unnamed creek T120 R31W S32, south line to Jewitts	B-FI	Aquatic Life
Crow River, North Fork Washington Cr to Meeker/Wright	Hg	Aquatic Consumption
Crow River, North Fork Meeker/Wright County line	Hg	Aquatic Consumption
Jewitts Creek (County Ditch 19, County Ditch 18)	A, B-FI, DO	Aquatic Life
Crow River, South Fork Buffalo Cr to N Fk Crow R	B-F, FC, Hg, T	Aquatic Consumption, Life and Recreation

Assessment of Waters (continued)

2006 Minnesota 303d Listed Lakes - Crow Watershed



Listed Lake	Impairment	Affected Use	Listed Lake	Impairment	Affected Use
West Sarah	Excess nutrients	Aquatic Recreation, Consumption	Dunns	Excess nutrients	Aquatic Recreation, Consumption
East Sarah	Excess nutrients	Aquatic Recreation, Consumption	Richardson	Excess nutrients	Aquatic Recreation, Consumption
Rebecca	Mercury	Aquatic Consumption	Minnie-Belle	Mercury	Aquatic Consumption
Hafften	Excess nutrients	Aquatic Recreation	Grove	Mercury	Aquatic Consumption
Diamond	Excess nutrients	Aquatic Recreation, Consumption	Rice	Mercury	Aquatic Consumption
Calhoun	Mercury	Aquatic Consumption	Koronis	Mercury	Aquatic Consumption
Long	Mercury	Aquatic Consumption	Beebe	Mercury	Aquatic Consumption
Green	Mercury	Aquatic Consumption	Pulaski (main bay)	Mercury	Aquatic Consumption
George	Mercury	Aquatic Consumption	Buffalo	Mercury	Aquatic Consumption
Nest	Mercury	Aquatic Consumption	Maple	Mercury	Aquatic Consumption
Mud	Mercury	Aquatic Consumption	Ann	Excess nutrients	Aquatic Recreation, Consumption
Hook	Mercury	Aquatic Consumption	Mary	Mercury	Aquatic Consumption
Francis	Mercury	Aquatic Consumption	Howard	Mercury	Aquatic Consumption
Jennie	Mercury	Aquatic Consumption	Granite	Mercury	Aquatic Consumption
Long	Mercury	Aquatic Consumption	French	Mercury	Aquatic Consumption
Spring	Mercury	Aquatic Consumption	West Lake Sylvia	Mercury	Aquatic Consumption
Big Swan	Mercury	Aquatic Consumption	John	Mercury	Aquatic Consumption
Washington	Mercury	Aquatic Consumption	East Lake Sylvia	Mercury	Aquatic Consumption
			Collinwood	Mercury	Aquatic Consumption

Common Resource Areas

The Crow Watershed encompasses four common resource areas, 103.2, 103.1, 102A.1, and 91A.1. ¹⁹

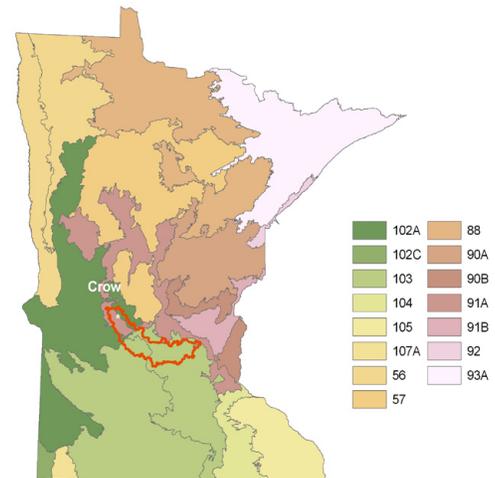
103.2 Iowa and Minnesota Rolling Prairie/Forest Moraines:

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.

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.

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.



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 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 upper watershed lying in the Wadena Lobe association. These lobes left clay-rich calcareous deposits containing fragments of limestone and shale.

Soils in the lower 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 upper 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.”



Visit the online Web Soil Survey at

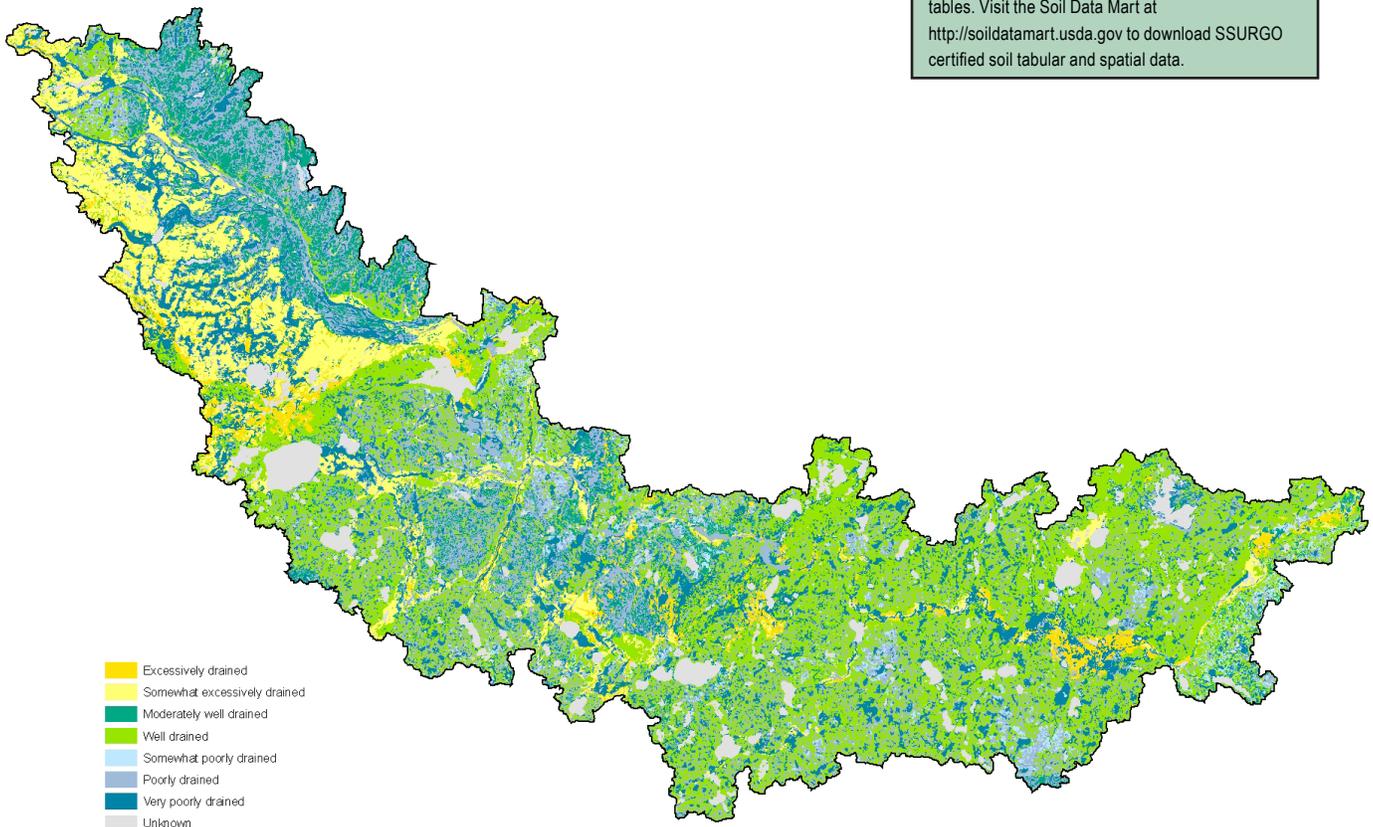
<http://websoilsurvey.nrcs.usda.gov> for official and

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Farmland Classification

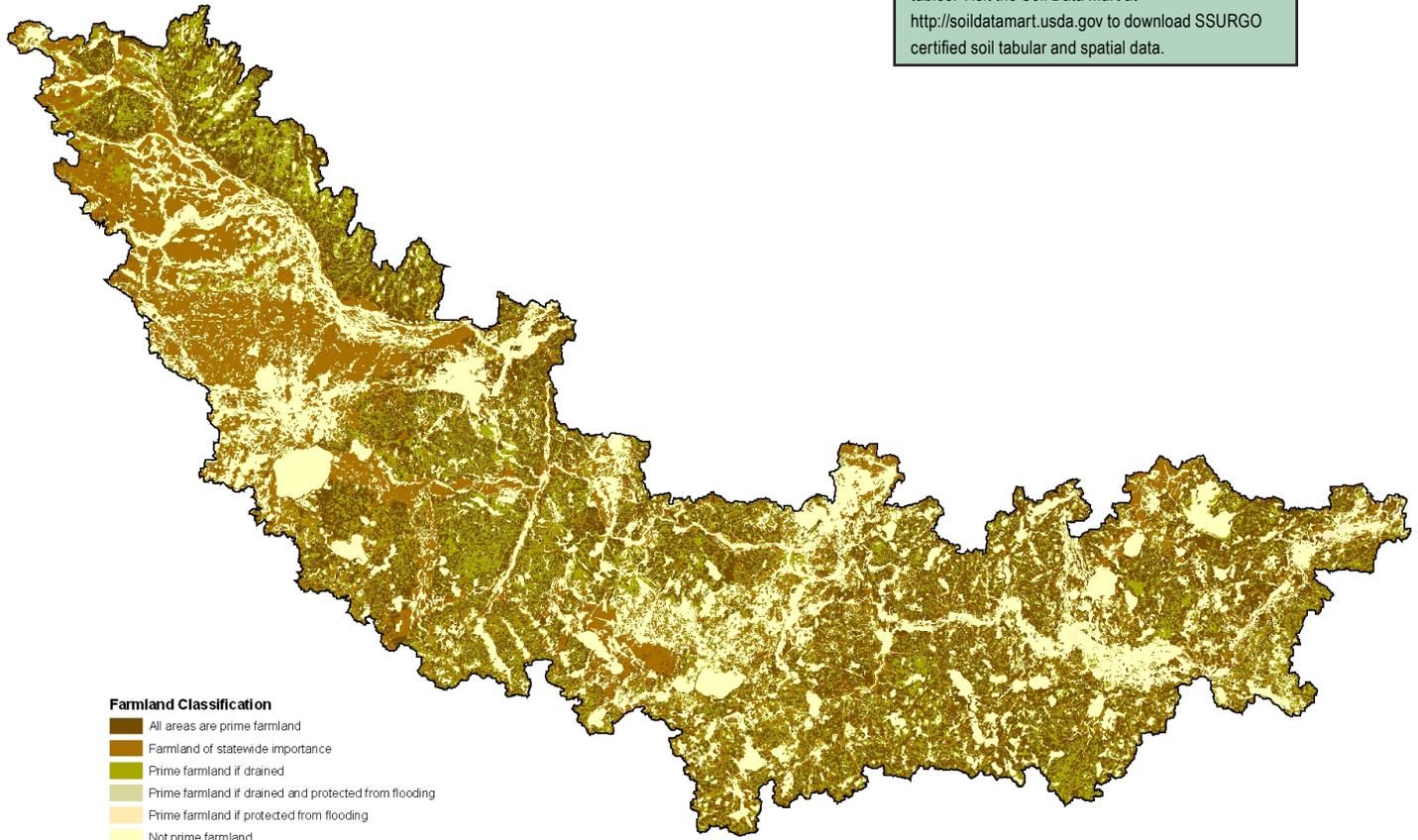
Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland.

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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Hydric Soils

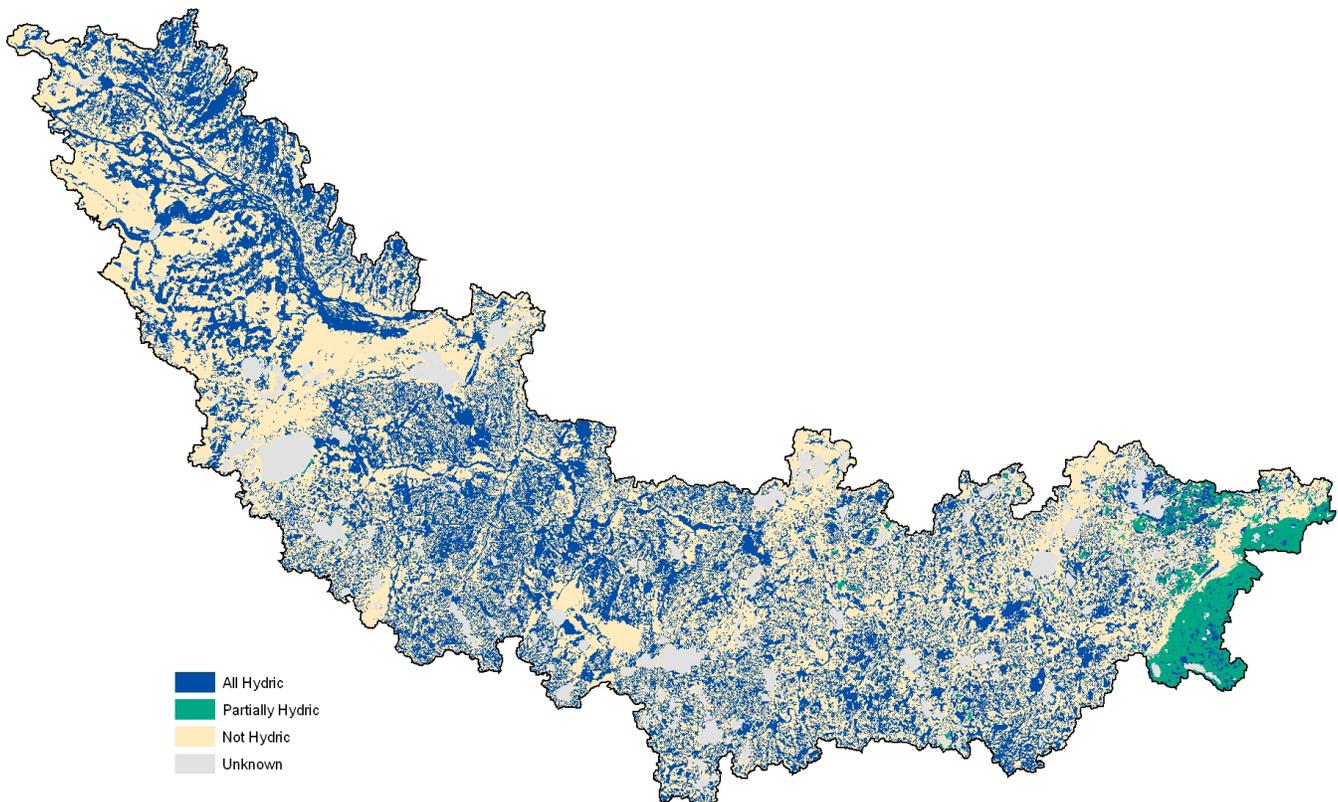
This rating provides an indication of the proportion of the map unit that meets criteria for hydric soils. Map units that are dominantly made up of hydric soils may have small areas, or inclusions of nonhydric soils in the higher positions on the landform. Map units of dominantly non-hydric soils may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

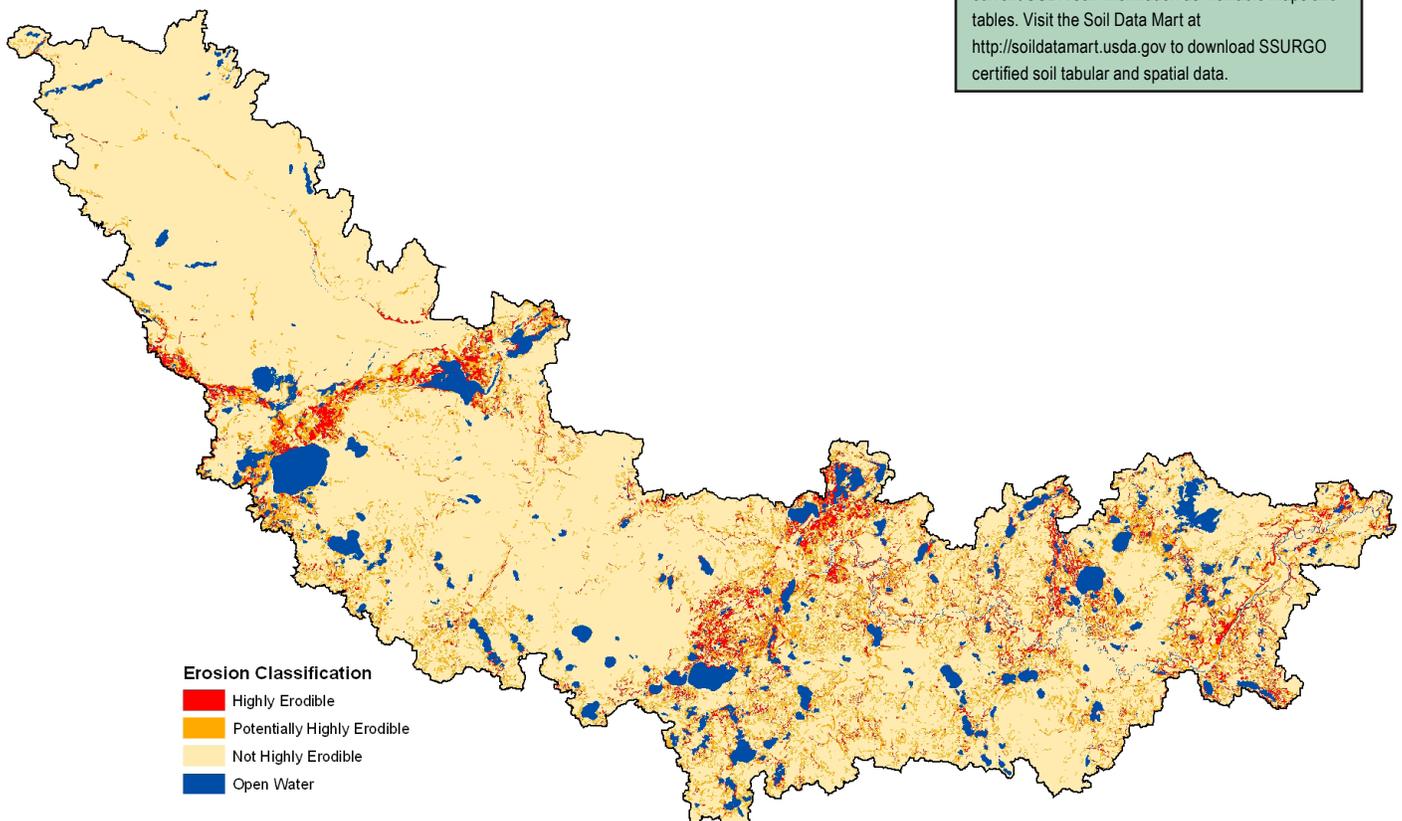
The erodibility index (EI) for a soil map unit is determined by dividing the potential erodibility for the soil map unit by the soil loss tolerance (T) value established for the soil in the FOTG as of January 1, 1990.

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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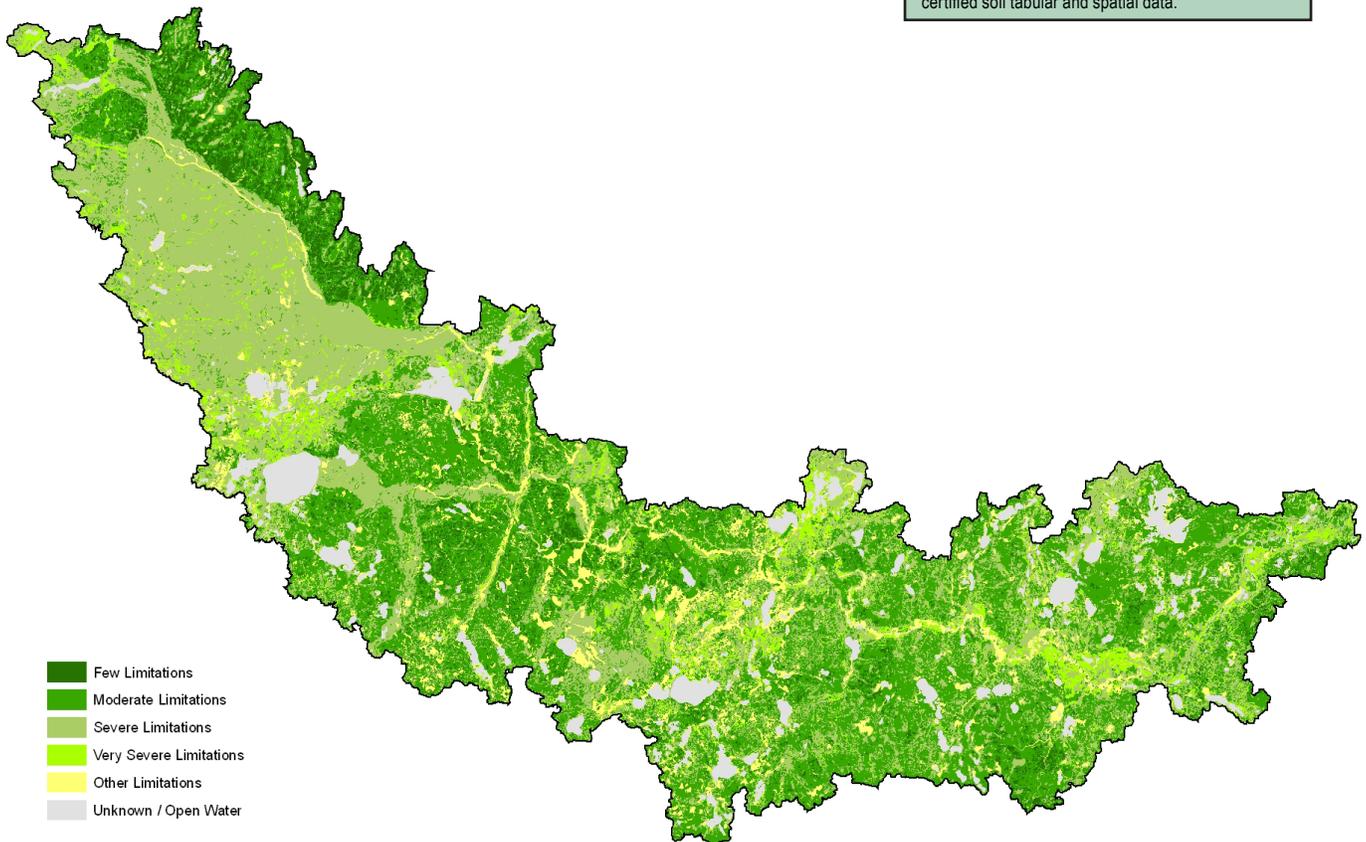
Land Capability Classification

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: Crow				Watershed Number: 07010204						
PRS Performance Measures	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	TOTAL
Total Conservation Systems Planned (acres)	7,112	9,507	0	7,036	6,711	N/A	10,396	26,741	17,515	85,018
Total Conservation Systems Applied (acres)	4,825	10,399	0	9,260	9,260	N/A	15,211	23,770	24,746	97,471
Conservation Practices										
Total Waste Management (313) (numbers)	2	0	0	1	1	1	3	0	2	10
Riparian Forest Buffers (391) (acres)	0	14	25	48	96	67	16	3	75	344
Erosion Control Total Soil Saved (tons/year)	0	129,519	96,940	71,514	60,711	N/A	N/A	N/A	N/A	358,684
Total Nutrient Management (590) (Acres)	1,006	1,457	3,873	1,148	2,310	1,902	7,619	7,619	4,999	31,933
Pest Management Systems Applied (595A) (Acres)	32	2,838	1,589	1,023	3,014	1,589	2,272	6,582	4,174	23,113
Prescribed Grazing 528a (acres)	0	109	192	0	0	169	75	25	25	595
Tree & Shrub Establishment (612) (acres)	14	234	314	159	161	168	24	561	106	1,741
Residue Management (329A-C) (acres)	273	4,443	8,824	973	2,042	2,382	2,382	4,928	2,171	28,418
Total Wildlife Habitat (644 - 645) (acres)	49	2,238	4,185	7,779	5,611	631	7,779	6,729	6,927	41,928
Total Wetlands Created, Restored, or Enhanced (acres)	1,679	228	100	488	212	177	125	282	239	3,530
Acres enrolled in Farmbill Programs										
Conservation Reserve Program	4,825	8,492	6,834	4,303	3,767	N/A	1,229	2,774	6,938	39,162
Wetlands Reserve Program	0	761	0	0	0	N/A	0	59	135	955
Environmental Quality Incentives Program	3,500	3,681	4,789	915	3,274	N/A	8,826	12,699	12,823	50,507
Wildlife Habitat Incentive Program	4,188	0	0	25	0	N/A	8	84	49	4,354
Farmland Protection Program	0	0	0	166	0	N/A	0	0	0	166

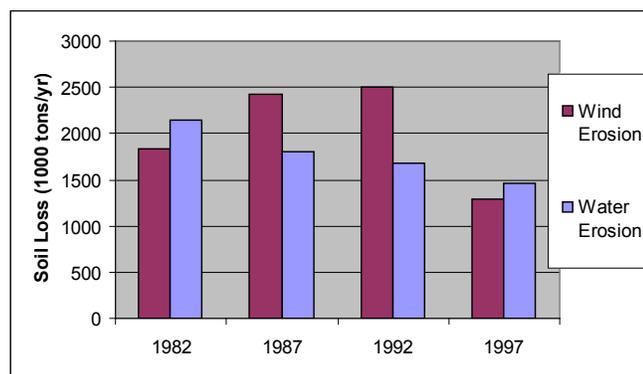
RESOURCE CONCERNS

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 692,100 tons (32.18%) of soil between 1982 and 1997.
- NRI estimates indicate wind erosion rates decreased by 538,900 tons (29.41%) between 1982 and 1997. ¹³



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>Buteo lineatus</i>	Red-shouldered Hawk	Zoological
<i>Carex sterilis</i>	Sterile Sedge	Botanical
<i>Cirsium hillii</i>	Hill's Thistle	Botanical
<i>Cypripedium candidum</i>	Small White Lady's-slipper	Botanical
<i>Dendroica cerulea</i>	Cerulean Warbler	Zoological
<i>Emydoidea blandingii</i>	Blanding's Turtle	Zoological
<i>Etheostoma microperca</i>	Least Darter	Zoological
<i>Gallinula chloropus</i>	Common Moorhen	Zoological
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Zoological
<i>Hudsonia tomentosa</i>	Beach-heather	Botanical
<i>Lanius ludovicianus</i>	Loggerhead Shrike	Zoological
<i>Lasmigona compressa</i>	Creek Heelsplitter	Zoological
<i>Ligumia recta</i>	Black Sandshell	Zoological
<i>Limosa fedoa</i>	Marbled Godwit	Zoological
<i>Microtus ochrogaster</i>	Prairie Vole	Zoological
<i>Najas marina</i>	Sea Naiad	Botanical
<i>Notropis anogenus</i>	Pugnose Shiner	Zoological
<i>Oarisma powesheik</i>	Powesheik Skipper	Zoological
<i>Panax quinquefolius</i>	American Ginseng	Botanical
<i>Pelecanus erythrorhynchos</i>	American White Pelican	Zoological
<i>Phalaropus tricolor</i>	Wilson's Phalarope	Zoological
<i>Pituophis catenifer</i>	Gopher Snake	Zoological
<i>Ruppia maritima</i>	Widgeon-grass	Botanical
<i>Speyeria idalia</i>	Regal Fritillary	Zoological
<i>Sterna forsteri</i>	Forster's Tern	Zoological

Socioeconomic and Agricultural Data (Relevant)

Estimations for the Crow subbasin indicate a current population of just under 96,990 people. Median household income throughout the district is \$51,649 annually, roughly 111% of the national average. Unemployment in the basin is estimated at 4.0%, and approximately 7% of the residents in the watershed live below the national poverty level.



Assessment estimates indicate 2,864 Farms in the watershed. Approximately sixty three percent of the operations are less than 180 acres in size, thirty three percent are from 180 to 1000 acres in size, and the remaining farms are greater than 1000 acres in size. Of the 2,868 Operators in the basin, sixty percent are full-time producers not reliant on off farm income.

(MN) HUC# 7010204		Total Acres:	949,107
Population Data*	Watershed Population	96,989	
	Unemployment Rate	4.0%	
	Median Household Income	51,649	
	% below poverty level	7%	
	Median Value of Home	114,675	
Farms	# of Farms	2,864	
	# of Operators	2,868	Percent
	# of Full Time Operators	1,714	60%
	# of Part Time Operators	1,154	40%
	Total Crop/Pasturelands:	630,600	66.4%
Farm Size	1 to 49 Acres	554	31%
	50 to 179 Acres	573	32%
	180 to 499 Acres	466	26%
	500 to 999 Acres	135	7%
	1,000 Acres or more	75	4%
Livestock & Poultry	Cattle - Beef	7,903	0%
	Cattle - Dairy	26,860	1%
	Chicken	182,176	5%
	Swine	68,361	2%
	Turkey	1,574,159	42%
	Other	1,868,446	50%
	Animal Count Total:	3,727,905	
Total Permitted AFOs:	1,186		
Chemicals (Acres Applied)	Insecticides	17,708	
	Herbicides	259,332	
	Wormicides	303	
	Fruiticides	1,811	
	Total Acres Treated	279,154	
	% State Chemical Totals	2.0%	

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

Watershed Projects, Plans and Monitoring

- **Biological & Toxicological Assessment**
Minnesota Pollution Control Agency
 - **Crow River Phase I Diagnostic Study**
Crow River Organization of Water
 - **Crow Watershed WQ 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.
 - **Mississippi River Env. Management Program**
US Army Corps of Engineers
 - **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

- **Carver County SWCD**
219 E Frontage Rd, Waconia, MN 55387-1862
Phone (952) 442-5101
- **Wright County SWCD**
306 C Brighton Ave, Buffalo, MN 55313
Phone (763) 682-1970
- **Hennepin County SWCD**
1313 5th St SE Ste 224C, Minneapolis, MN 55414
Phone (612) 379-3932
- **North Fork Crow River Watershed District**
100 Prairie Ave. N, Box 40 Brooten, MN 56316
Phone (320) 346-2869
- **Kandiyohi Conty SWCD**
1005 High Ave NE, Willmar, MN 56201-2667
Phone (320) 235-3906
- **Friends of the Mississippi River**
360 N Robert St Saint Paul, MN 55101
Phone (651) 222-2193
- **McLeod County SWCD**
2570 9th St E, PO Box 160, Glencoe, MN 55336
Phone (320) 864-5176
- **Crow River Org. of Water (Joint Powers Board)**
306c Brighton Avenue Buffalo, MN 55113
Phone (763) 682-1933 ext. 3
- **Meeker County SWCD**
916 E St Paul St, Litchfield, MN 55355-0891
Phone (320) 693-7287
- **Prairie Country RC&D**
1005 High Avenue Willmar, MN 56201
Phone (320) 231-0008, Ext. 5
- **Pope County SWCD**
1680 Franklin St N, Glenwood, MN 56334
Phone (320) 634-5327
- **Trout Unlimited Twin Cities Chapter**
PO Box 390207
Edina, MN 55439-0207
- **Stearns County SWCD**
110 Second St S Ste 128, Waite Park, MN 56387
Phone (320) 251-7800
- **Middle Fork Crow Watershed District**
Post Office Box 1 Spicer, MN 56288
Phone (320) 796-0888

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.

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.