
**Rapid Watershed Assessment
Resource Profile**

Blue Earth (MN/IA) HUC: 07020009



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.

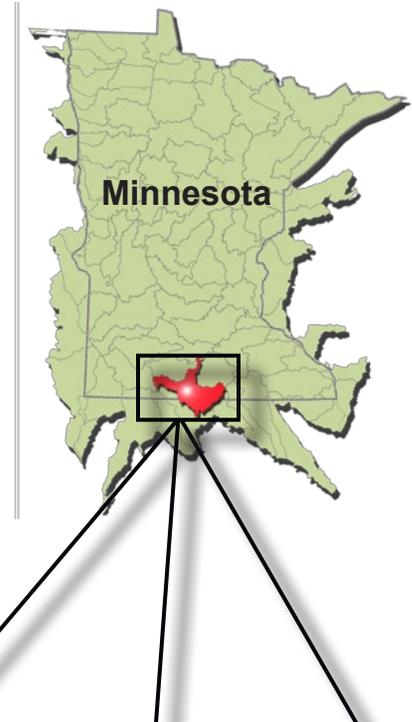
Introduction

The Blue Earth River Watershed is a sub-basin of the greater Minnesota River Basin in South Central Minnesota and North Central Iowa. The headwaters of the Blue Earth rise in Iowa and flow north across the state boundary as the West Fork and the main stem, and the East Fork originates entirely in Minnesota.

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

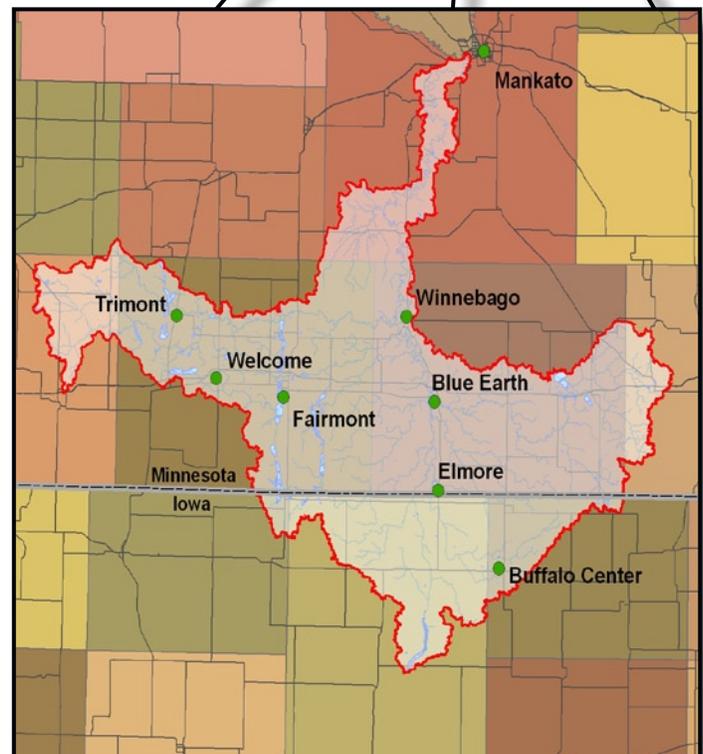
The main resource concerns in the watershed are sediment and erosion control, stormwater management, drinking and source water protection, drainage management, waste management, nutrient management, surface water quality and wetland management.

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



County Totals

County	HUC Acres	% HUC
Faribault	304,817	30.4%
Martin	304,701	30.4%
Kossuth	161,896	16.2%
Blue Earth	80,465	8.0%
Winnebago	54,522	5.4%
Jackson	53,811	5.4%
Freeborn	31,858	3.2%
Emmet	7,868	0.8%
Cottonwood	841	0.1%
Watonwan	750	0.1%
Total acres:	1,001,805	100%



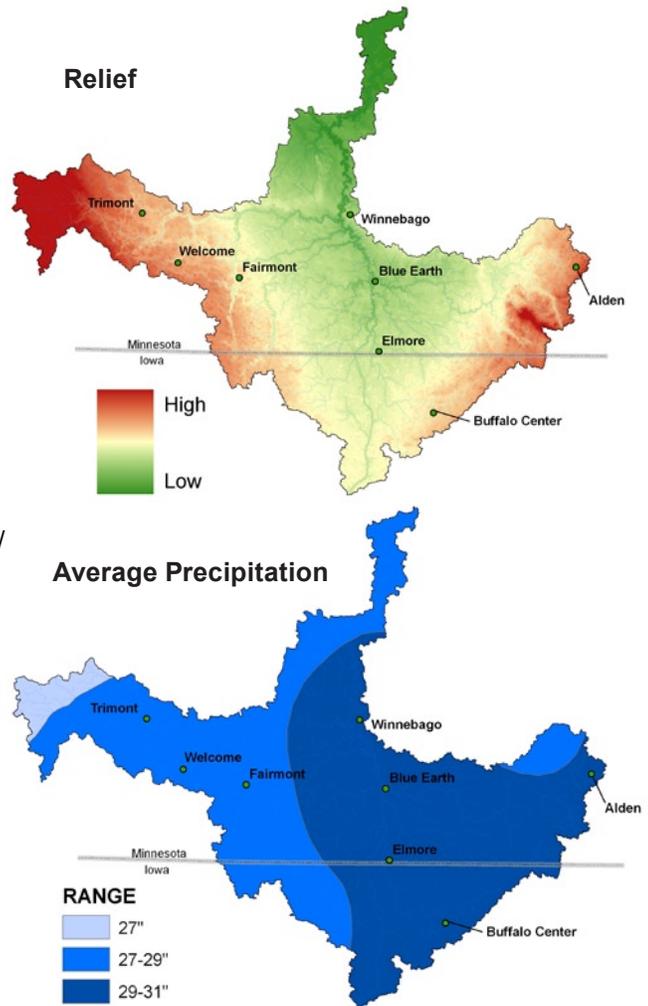
Physical Description

The Blue Earth watershed is located in the Minnesota River Prairie subsection of Minnesota’s ecological classification system. Soils in this HUC are predominantly glacial till plains. Average elevation in the watershed is 1167 feet above sea level, with the highest values being in the western and eastern portions of the watershed, while the lowest are found across the North and central regions approaching the Minnesota River channel.

Precipitation in the watershed ranges from 27 to 31 inches annually. Most land within this watershed is considered highly productive, and is well to moderately well suited to agricultural uses. Predominate land uses are row crops (85%), Residential/Commercial Development (7%), Grass/Pasture/Hay (2.7%), and Wetlands (2.6%).

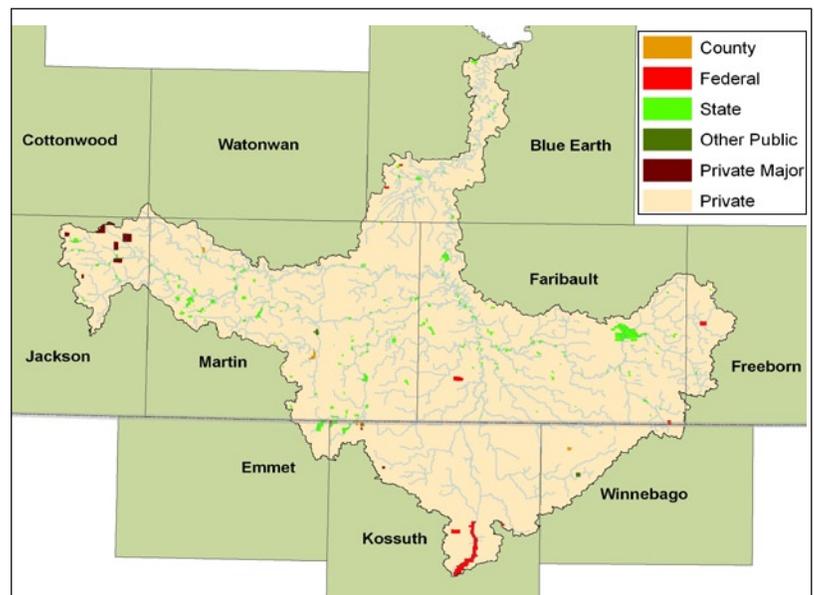
Two-year corn/soybean rotations comprise approximately 92% of cropped lands within the watershed; small grains, hay, and grasslands enrolled in the Conservation Reserve Program (CRP) make up the majority of the balance.

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



Ownership¹

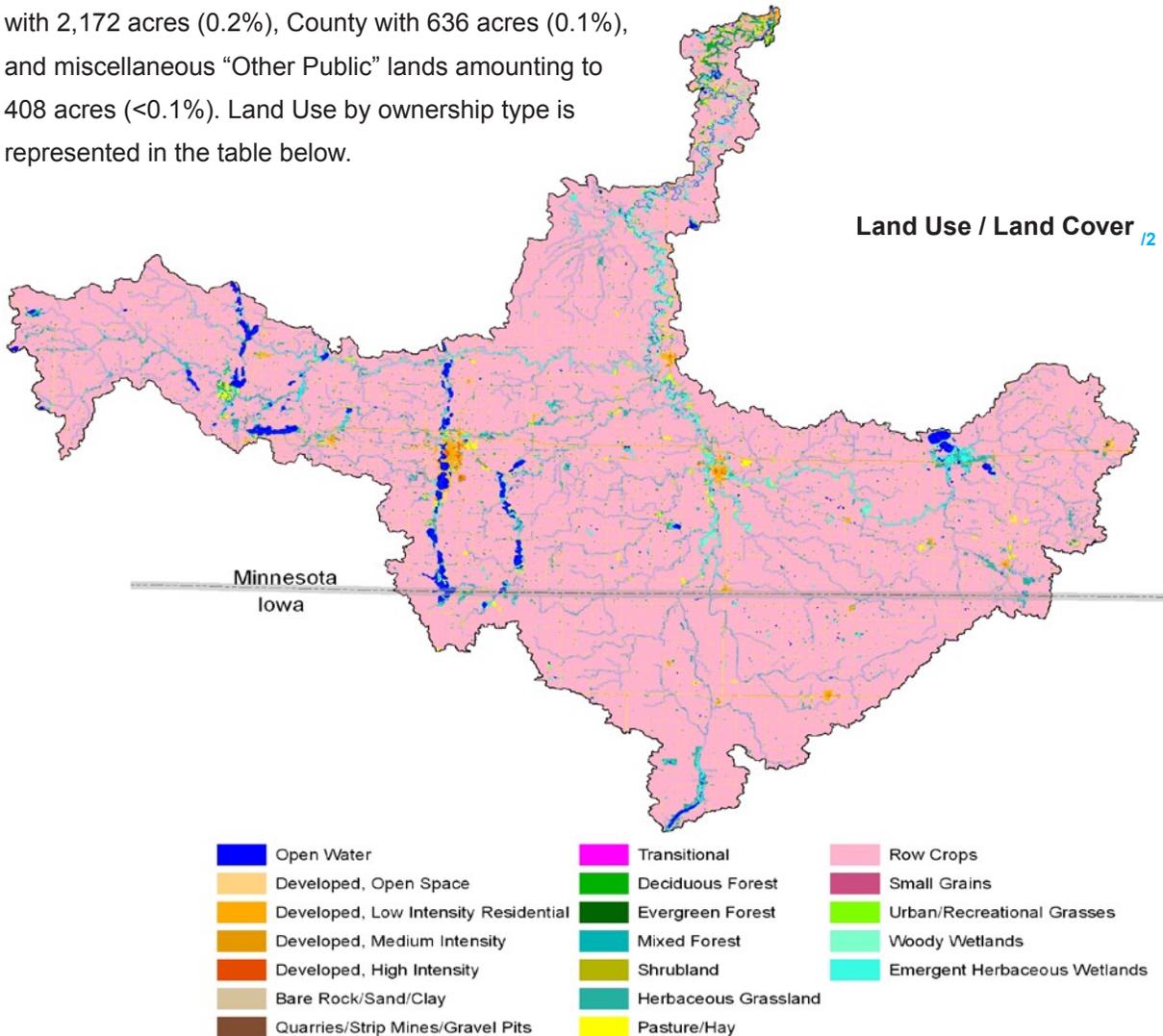
Ownership Type	Acres	% of HUC
Conservancy	-	-
County	636	0.1
Federal	3,969	0.4
State	13,803	1.4
Other	408	0.0
Tribal	-	-
Private Major	2,172	0.2
Private	980,816	97.9
Total Acres:	1,001,805	100



¹ * Ownership totals derived from 2009 MN DNR GAP Stewardship data and are the best suited estimation of land stewardship available on a statewide scale at time of publication. See the bibliography section of this document for further information.

Ownership / Land Use

The Blue Earth watershed covers an area of 1,001,805 acres. Approximately ninety eight percent of the land in the watershed is owned by private landholders (980,816 acres). The second largest ownership type is State, with approximately 13,800 acres (1.4%), followed by Federal with 3,970 acres (0.4%), Private Major with 2,172 acres (0.2%), County with 636 acres (0.1%), and miscellaneous "Other Public" lands amounting to 408 acres (<0.1%). 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	268	0.0%	8,134	0.8%	0	0.0%	8,403	0.8%
Grass, etc	3,854	0.4%	23,691	2.4%	0	0.0%	27,546	2.7%
Orchards	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Row Crops	7,271	0.7%	848,171	84.7%	0	0.0%	855,442	85.4%
Shrub etc	8	0.0%	760	0.1%	0	0.0%	767	0.1%
Wetlands	4,534	0.5%	21,095	2.1%	0	0.0%	25,628	2.6%
Residential/Commercial	840	0.1%	68,271	6.8%	0	0.0%	69,111	6.9%
Open Water*	2,036	0.2%	12,580	1.3%	0	0.0%	14,616	1.5%

* ownership undetermined

** includes private-major

Watershed Totals:	18,811	1.88%	982,702	98.1%	0	0.0%	1,001,805	100%
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Physical Description (continued)

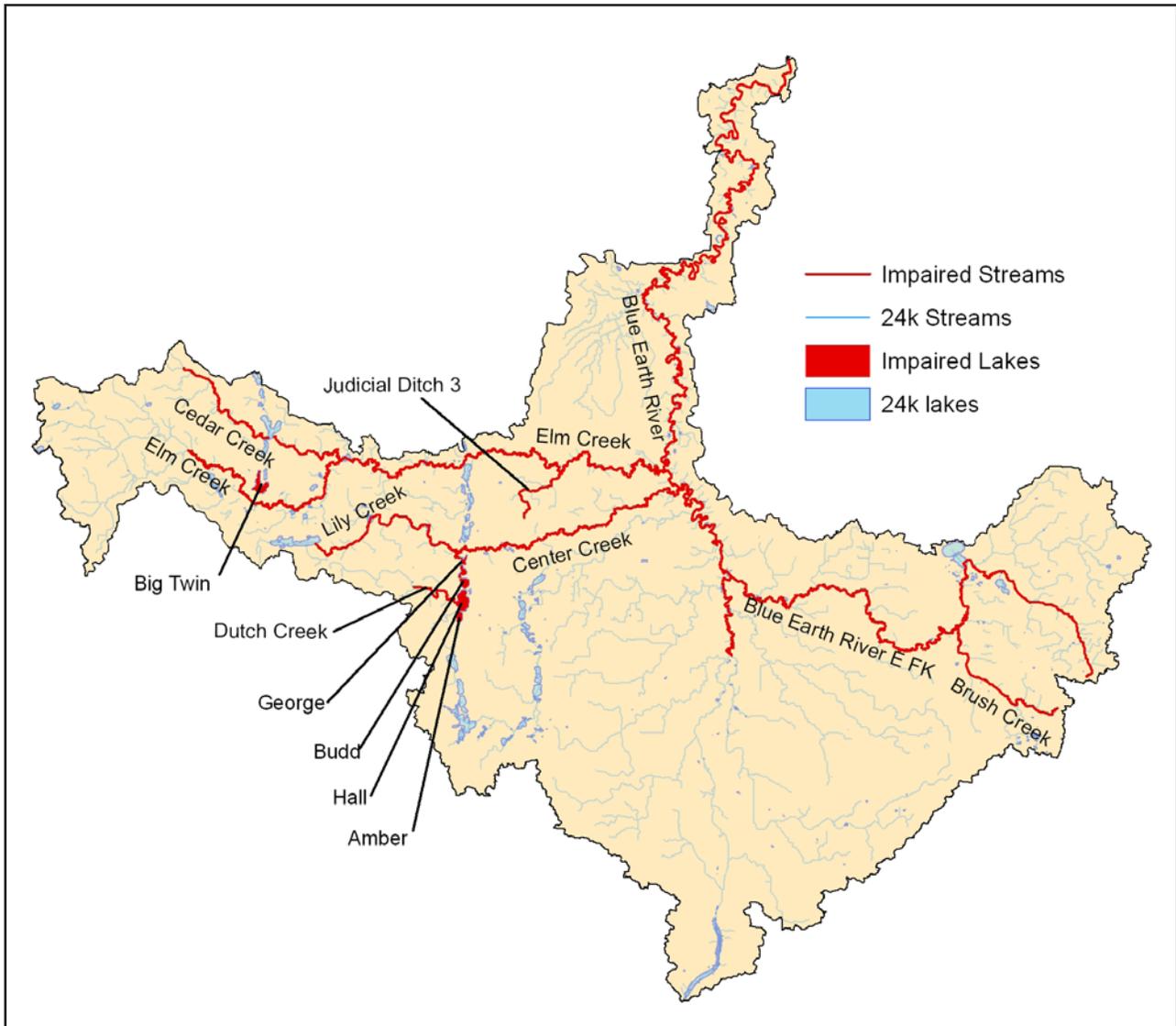
		ACRES	Cu. ft/sec
2008 Stream Flow Data	USGS 05320000 BLUE EARTH RIVER NEAR RAPIDAN, MN	2008 Total Avg.	1,644
		May – Sept. Avg.	2,035
		2008 Peak	9,180
		ACRES/MILES	PERCENT
Stream Data⁴ (* % of 24k Stream Miles ** % 24k lake surface area)	Total Stream Miles (24K NHD Layer)	1,515	---
	2009 303d/TMDL Listed Streams (MPCA)	103.1	6.8%*
	TMDL Lakes Surface Area (Acres)	1,602.7	13.8%**
Riparian Land Cover/Land Use⁵ (Based on a 100-foot buffer on both sides of all streams in the Streams Layer)	Land Use Type	Acres	Percent
	Forest	665	2.3%
	Grain Crops	0	0.0%
	Grass, etc	3,385	11.9%
	Orchards	0	0.0%
	Row Crops	15,622	55.1%
	Shrub etc	10	0.0%
	Wetlands	4,850	17.1%
	Residential/Commercial	1,756	6.2%
	Open Water*	2,052	7.2%
	Total Buffer Acres:	28,340	100%
Crop and Pastureland Land Capability Class⁶ (Croplands & Pasturelands Only) (1997 NRI Estimates for Non-Federal Lands Only)	1 – slight limitations	130,185	14%
	2 – moderate limitations	567,801	62%
	3 – severe limitations	183,346	20%
	4 – very severe limitations	24,393	3%
	5 – no erosion hazard, but other limitations	4,905	1%
	6 – severe limitations; unsuitable for cultivation; limited to pasture, range, forest	1,723	0%
	7 – very severe limitations; unsuitable for cultivation; limited to grazing, forest, wildlife habitat	0	0%
	8 – miscellaneous areas; limited to recreation, wildlife habitat, water supply	0	0%
	Total Croplands & Pasturelands	912,353	

Assessment of Waters

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

Impaired waterbodies are indicated on the map graphic below. A description of each listed waterbody, the impairment(s) and affected uses can be found on the following page.

2009 TMDL Listed Waters - Blue Earth Watershed¹⁸



Assessment of Waters (Cont.)

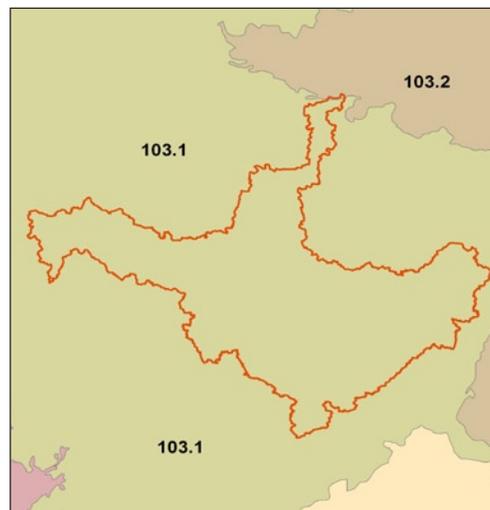
Waterbody Name	Impairment	Affected Use
Blue Earth River Le Sueur River to Minnesota River	T	Aquatic Consumption, Aquatic Life and Aquatic Recreation
Elm Creek Cedar Cr to Blue Earth River	B-F, T	Aquatic Life and Aquatic Recreation
Center Creek Lily Cr to Blue Earth River	A, B-F, T	Aquatic Life and Aquatic Recreation
Blue Earth River W Branch Blue Earth R to Coon Creek	B-F, T	Aquatic Consumption, Aquatic Life and Aquatic Recreation
Judicial Ditch 3 Headwtrs to Elm Creek	DO	Aquatic Life and Aquatic Recreation
Blue Earth River Willow Cr to Watonwan River	T	Aquatic Consumption
Blue Earth River E Br Blue Earth R to South Creek	B-F, T	Aquatic Consumption and Aquatic Life
Blue Earth River Rapidan Dam to Le Sueur River	T	Aquatic Consumption and Aquatic Life
Blue Earth River Watonwan River to Rapidan Dam	Hg	Aquatic Consumption
Blue Earth River Center Cr to Elm Cr	Hg	Aquatic Consumption
Blue Earth River Elm Cr to Willow Cr	B-F, T	Aquatic Consumption and Aquatic Life
Blue Earth River South Cr to Center Cr	B-F	Aquatic Consumption and Aquatic Life
Blue Earth River Coon Cr to Badger Cr	T	Aquatic Consumption
Cedar Creek Cedar Lk to Elm Cr	T	Aquatic Life and Aquatic Recreation
Elm Creek S Fk Elm Cr to Cedar Cr	T	Aquatic Life and Aquatic Recreation
Lily Creek Headwaters to Center Cr	T	Aquatic Life and Aquatic Recreation
Center Creek George Lk to Lily Creek	FC	Aquatic Recreation
Dutch Cr Headwaters to Hall Lake	T	Aquatic Life and Aquatic Recreation
Blue Earth River, East Branch Brush Creek to Blue Earth	B-F, T	Aquatic Life
Blue Earth River, East Branch Headwaters to Brush Cr	B-F, T	Aquatic Life
Brush Creek Headwaters to E Br Blue Earth R	B-F	Aquatic Life
Cedar Creek T104 R33W S6, west line to Cedar Lake	DO	Aquatic Life and Aquatic Recreation
Blue Earth River Badger Cr to E Branch Blue Earth River	T	Aquatic Consumption
Watonwan River Perch Cr to Blue Earth River	Hg, T	Aquatic Consumption, Aquatic Life and Aquatic Recreation
Le Sueur River Maple R to Blue Earth R	ACE, Hg, PCB, T	Aquatic Consumption and Aquatic Life
George	Excess nutrients	Aquatic Recreation
Sisseton	Excess nutrients	Aquatic Recreation
Budd	Excess Nutrients, PCBs	Aquatic Recreation and Aquatic Consumption
Hall	Excess nutrients	Aquatic Recreation
Amber	Excess nutrients	Aquatic Recreation
Big Twin	Mercury	Aquatic Consumption

Common Resource Areas

The Blue Earth River Watershed occurs in two common resource areas, CRAs 103.1 and 103.2^{/9}

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

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



Geology / Soils^{/10}

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

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

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

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

Visit the online Web Soil Survey at

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

 current USDA soil information as viewable maps and

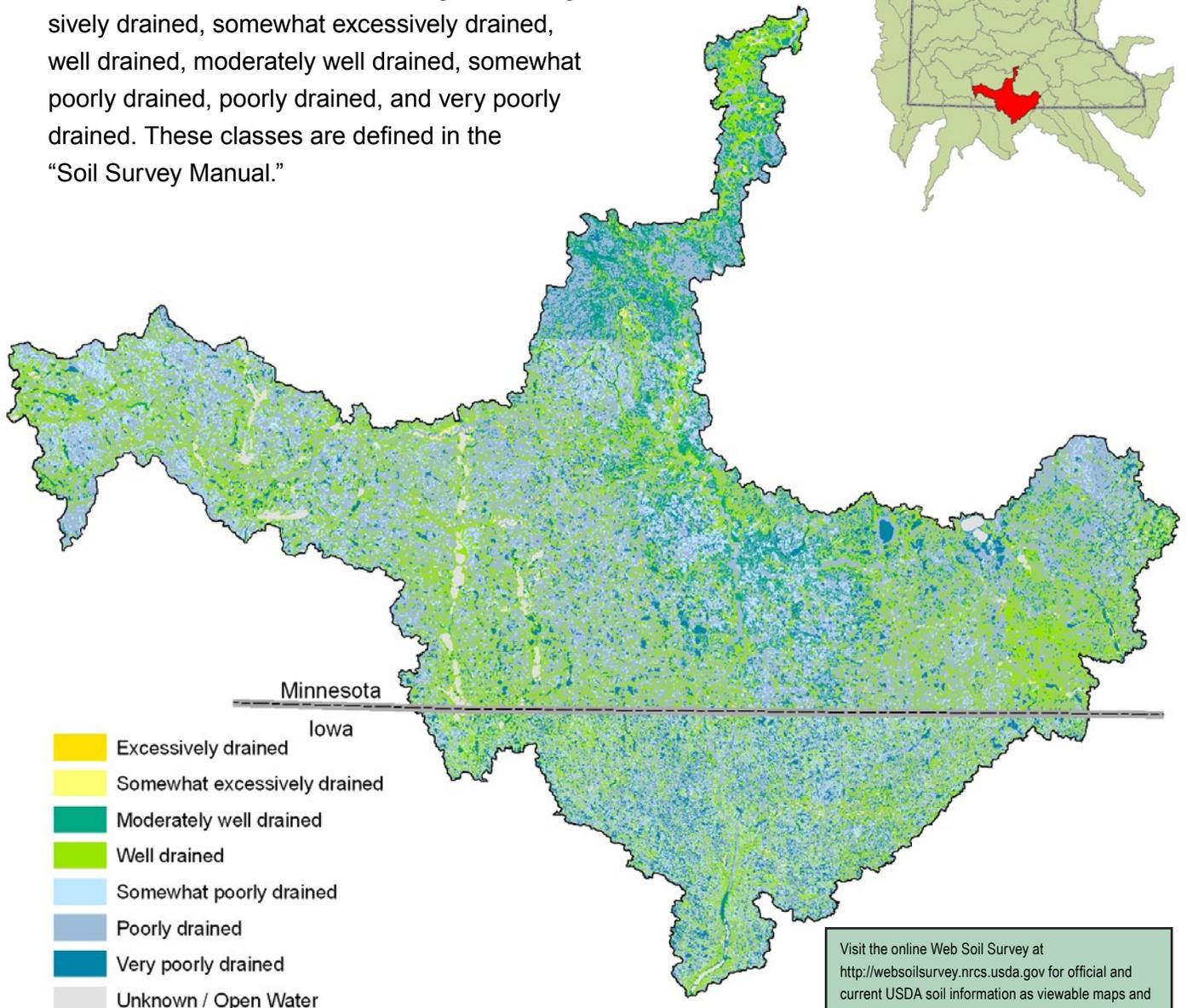
 tables. Visit the Soil Data Mart at soildatamart.usda.gov

 download SSURGO certified soil tabular /spatial data.

Drainage Classification

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

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



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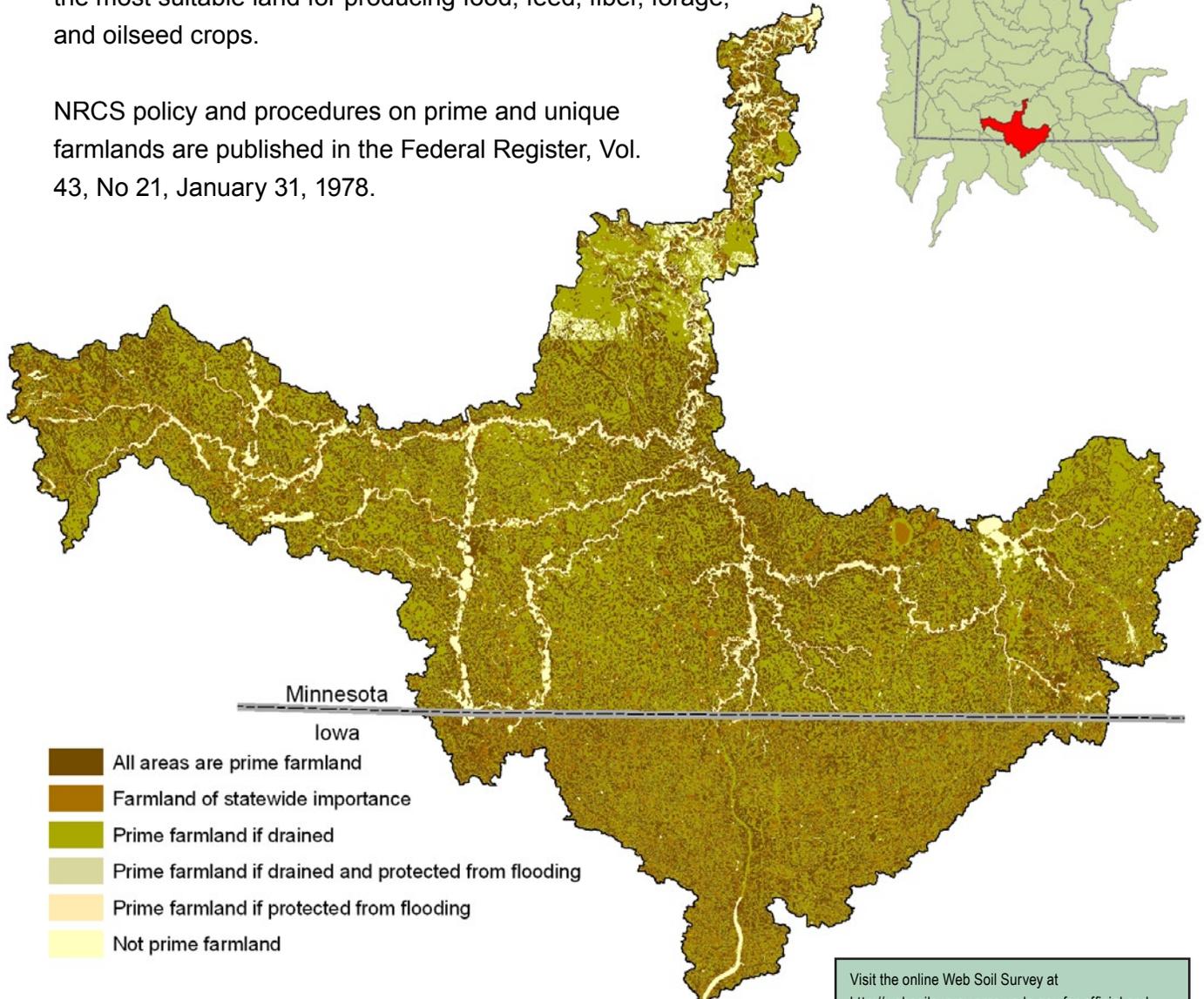
 certified soil tabular and spatial data.

Farmland Classification

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

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

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



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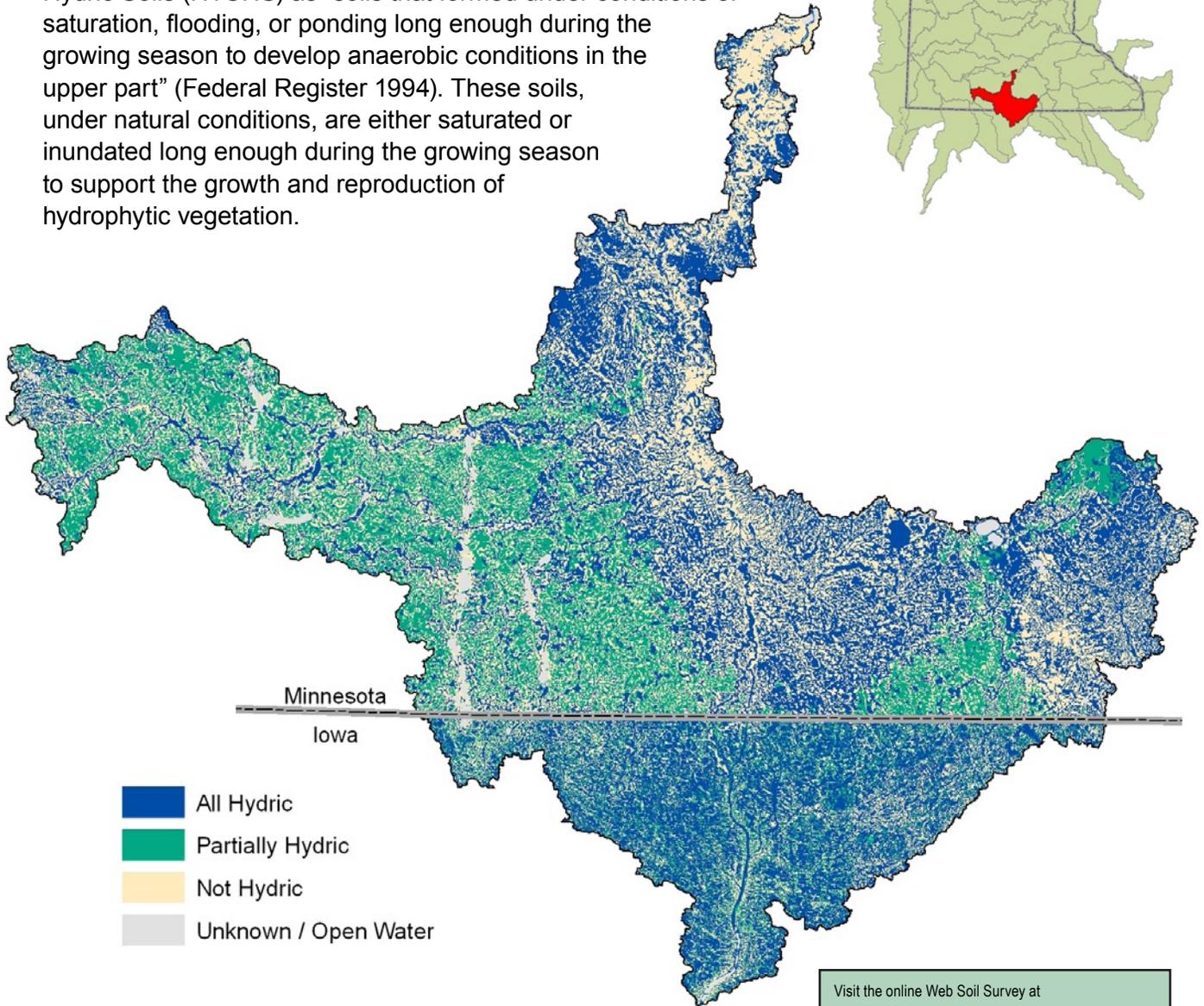
<http://soildatamart.usda.gov> to download SSURGO

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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.



-  All Hydric
-  Partially Hydric
-  Not Hydric
-  Unknown / Open Water

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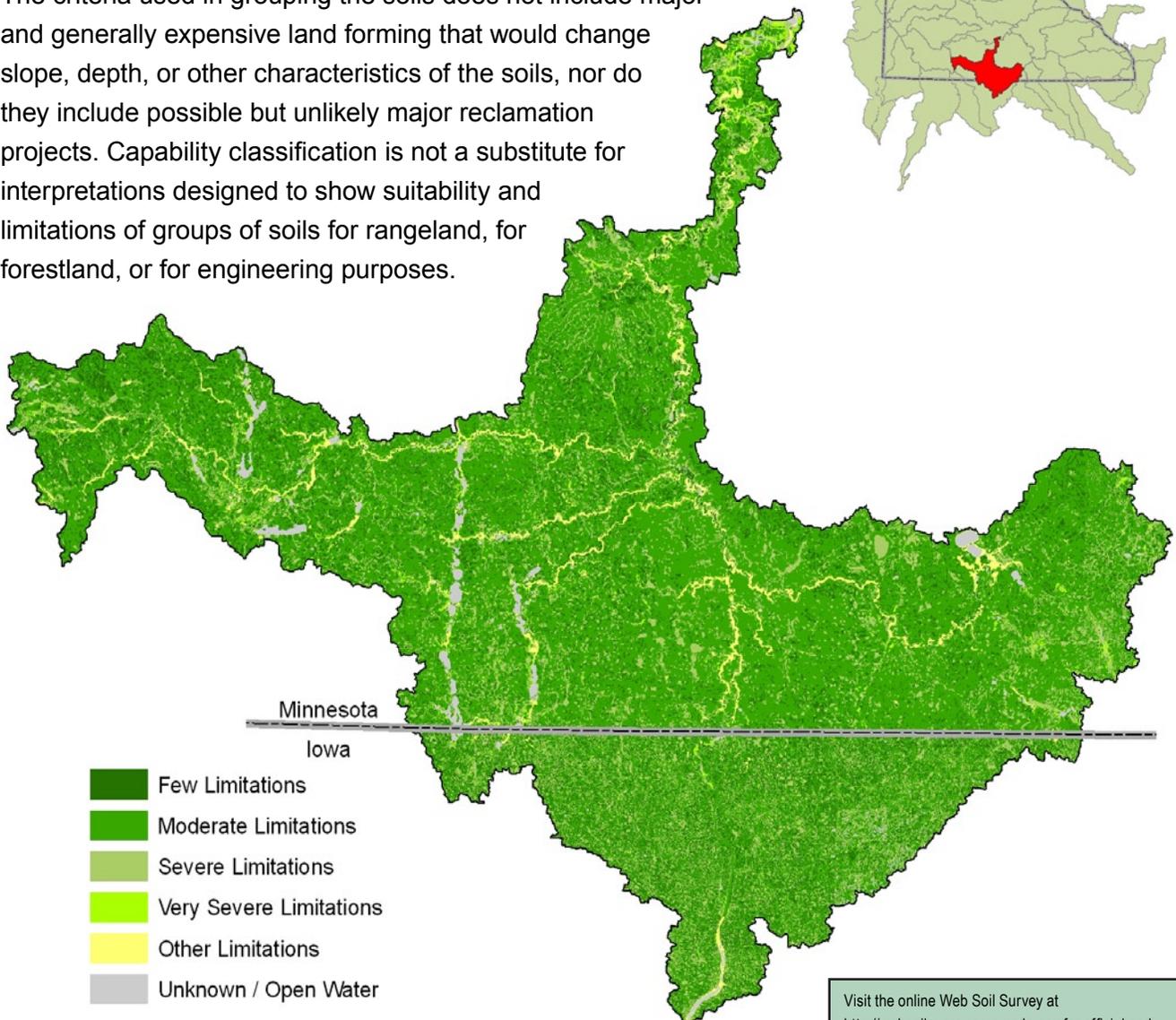
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Land Capability Classification

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

PRS Performance Measures	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	TOTALS
Total Conservation Systems Planned (acres)	578	6,445	0	13,048	14,400	N/A	24,986	18,750	15,906	94,113
Total Conservation Systems Applied (acres)	380	5,055	0	7,411	7,411	N/A	29,073	15,380	24,562	89,272
Conservation Practices										
Total Waste Management (313) (numbers)	0	1	0	0	0	0	0	0	0	1
Riparian Forest Buffers (391) (acres)	0	8	31	31	84	25	0	48	6	233
Erosion Control Total Soil Saved (tons/year)	102	25,734	8,982	23,597	31,130	N/A	N/A	N/A	N/A	89,545
Total Nutrient Management (590) (Acres)	0	408	1,556	2,140	1,526	2,790	3,376	3,376	2,197	17,369
Pest Management Systems Applied (595A) (Acres)	0	275	249	1,467	790	2,573	25,661	655	1,649	33,319
Prescribed Grazing 528a (acres)	0	0	17	0	0	0	24	0	0	41
Tree & Shrub Establishment (612) (acres)	5	38	78	97	139	12	0	2	63	434
Residue Management (329A-C) (acres)	0	4,694	3,238	4,782	4,640	5,518	5,518	8,750	2,921	40,061
Total Wildlife Habitat (644 - 645) (acres)	48	839	1,043	2,007	2,608	179	2,007	1,853	3,043	13,627
Total Wetlands Created, Restored, or Enhanced (acres)	0	179	99	211	516	197	509	223	158	2,092
Acres enrolled in Farmbill Programs										
Conservation Reserve Program	368	1,726	1,039	4,475	3,801	N/A	1,139	2,497	3,838	18,883
Wetlands Reserve Program	1	22	20	0	0	N/A	296	0	41	380
Environmental Quality Incentives Program	1	0	632	2,025	3,146	N/A	4,775	6,493	7,088	24,160
Wildlife Habitat Incentive Program	1	77	0	0	0	N/A	0	40	0	118
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, and candidate species as well as species of special concern that occur in the subbasin.



Scientific Name	Common Name	Type
<i>Actinonaias ligamentina</i>	Mucket	Zoological
<i>Agalinis auriculata</i>	Eared False Foxglove	Botanical
<i>Alasmidonta marginata</i>	Elktoe	Zoological
<i>Arnoglossum plantagineum</i>	Tuberous Indian-plantain	Botanical
<i>Asclepias sullivantii</i>	Sullivant's Milkweed	Botanical
<i>Atrytone arogos</i>	Arogos Skipper	Zoological
<i>Baptisia alba</i>	White Wild Indigo	Botanical
<i>Crotalus horridus</i>	Timber Rattlesnake	Zoological
<i>Cypripedium candidum</i>	Small White Lady's-slipper	Botanical
<i>Elliptio dilatata</i>	Spike	Zoological
<i>Eryngium yuccifolium</i>	Rattlesnake-master	Botanical
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Zoological
<i>Lanius ludovicianus</i>	Loggerhead Shrike	Zoological
<i>Lasmigona compressa</i>	Creek Heelsplitter	Zoological
<i>Lasmigona costata</i>	Fluted-shell	Zoological
<i>Lespedeza leptostachya</i>	Prairie Bush Clover	Botanical
<i>Obovaria olivaria</i>	Hickorynut	Zoological
<i>Pelecanus erythrorhynchos</i>	American White Pelican	Zoological
<i>Pleurobema coccineum</i>	Round Pigtoe	Zoological
<i>Speotyto cunicularia</i>	Burrowing Owl	Zoological
<i>Speyeria idalia</i>	Regal Fritillary	Zoological
<i>Trillium nivale</i>	Snow Trillium	Botanical
<i>Valeriana edulis</i> ssp. <i>ciliata</i>	Valerian	Botanical
<i>Venustaconcha ellipsiformis</i>	Ellipse	Zoological

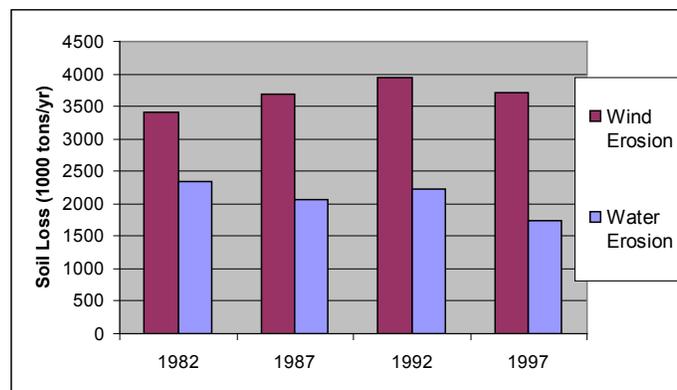
RESOURCE CONCERNS

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

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

NRI Soil Loss Estimates¹³

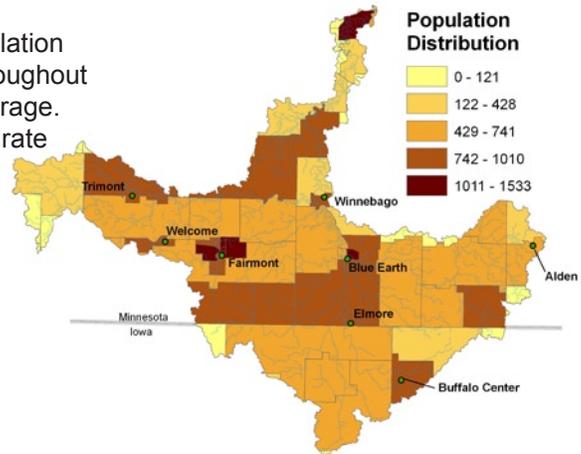
- NRI estimates for sheet and rill erosion by water on the cropland and pastureland **decreased** by approximately 606,000 tons (25%) of soil between 1982 and 1997.
- NRI estimates indicate wind erosion rates **increased** by 293,500 tons (9%) between 1982 and 1997.



Socioeconomic and Agricultural Data (Relevant)

Estimations for the Blue Earth subbasin indicate a current population of approximately 37,540 people. Median household income throughout the district is \$37,975 annually, roughly 82% of the national average. Unemployment figures for the basin indicate an unemployment rate of four percent, and approximately 9% of the residents in the watershed are living below the national poverty level.

Assessment estimates indicate 2,194 farms in the watershed. Approximately forty two percent of the operations are less than 180 acres in size, forty six percent are from 180 to 1000 acres in size, and the remaining farms are greater than 1000 acres. Of the 2,098 operators in the basin, seventy four percent are full time producers not reliant on off-farm income.



(MN/IA) HUC# 7020009		Total Acres:	1,001,805
Population Data*	Watershed Population	37,539	
	Unemployment Rate	4.0%	
	Median Household Income	37,975	
	% below poverty level	9%	
	Median Value of Home	64,800	
Farms	# of Farms	2,194	
	# of Operators	2,098	Percent
	# of Full Time Operators	1,645	74%
	# of Part Time Operators	569	26%
	Total Cropland Acres	859,557	85.8%
Farm Size	1 to 49 Acres	410	23%
	50 to 179 Acres	336	19%
	180 to 499 Acres	486	27%
	500 to 999 Acres	334	19%
	1,000 Acres or more	233	13%
	Average Farm Size	94	
Livestock & Poultry	Cattle - Beef	4,472	0%
	Cattle - Dairy	2,987	0%
	Chicken	4,313	0%
	Swine	797,641	48%
	Turkey	23,460	1%
	Other	837,290	50%
	Animal Count Total:	1,670,162	
	Total Permitted AFOs:	823	
Chemicals (Acres Applied)	Insecticides	35,685	
	Herbicides	343,756	
	Wormicides	1,695	
	Fruiticides	517	
	Total Acres Treated (MN)	381,652	
	% State Chemical Totals	2.7%	

* 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

- **Blue Earth River TMDL Project**
Minnesota Pollution Control Agency
- **Greater Blue Earth River Watershed Initiative**
Three Rivers Resource Conservation & Dev. Council
- **Blue Earth River Watershed CSP**
Natural Resources Conservation Service MN
- **Blue Earth Watershed Project**
MN DNR / BERBI
- **Minneopa Creek Watershed Project**
MN DNR / Blue Earth County
- **Lily and Center Creek-Blue Earth River CWP**
Martin County / Greater Blue Earth Basin Alliance
- **Greater Blue Earth Targeted Watersheds Grant**
US Environmental Protection Agency
- **Lower Maple River Watershed Project CWP**
Blue Earth County / Minnesota Pollution Control Agency
- **Minnesota River Turbidity TMDL Work Plan**
Minnesota Pollution Control Agency
- **MRAP Biological & Toxicological Assessment**
Minnesota Pollution Control Agency
- **MRAP Land Use Assessment Levels III, IV**
Minnesota Pollution Control Agency
- **South Central MN Comprehensive County Water Planning Project,**
Minnesota River Basin Joint Powers Board

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

Conservation Districts, Organizations & Partners

- **Area II Minnesota River Basin Projects, Inc**
1400 E Lyon Street, Bx 267 Marshall, MN 56258
Phone 507-537-6369 Fax 507-537-6368
- **Black Dog Water Management Commission**
100 Civic Center Pkwy, Burnsville, MN 55337
Phone 952-895-4505
- **Blue Earth Co. Soil & Water Conservation District**
1160 Victory Dr #3 Mankato, MN 56001-5307
Phone 507-345-4744
- **Blue Earth Basin Initiative (BERBI)**
426 Winnebago Ave, #100 Fairmont, MN 56031
Phone 507-238-5449
- **Lily and Center Creek - Blue Earth River CWP**
923 N. State Street, Suite 170 Fairmont MN 56031
Phone 507-235-6680
- **Cottonwood Co. Soil & Water Conservation District**
339 9th St, Windom, MN 56101
Phone (507) 831-1153
- **Faribault Co. Soil & Water Conservation District**
415 South Grove Street #8, Blue Earth MN 56013
Phone 507-526-2388
- **Freeborn Co. Soil & Water Conservation District**
1400 W Main St Albert Lea, MN 56007
Phone 507-373-5607
- **Jackson Co. Soil & Water Conservation District**
Rt. 2 Box 9, S Highway 86 Lakefield, MN 56150
Phone 507-662-6682
- **Martin Co. Soil and Water Conservation District**
932 N State Street #170 Fairmont, MN 56031
Phone 507-235-6680
- **Minnesota River Basin Joint Powers Board**
600 E. 4th St Chaska, MN 55318-2108
Phone 952-361-6590 Fax 952-361-6594
- **Nicollet Co. Soil & Water Conservation District**
501 South Minnesota Avenue St. Peter, MN 56082
Phone 507- 931-6800
- **Three Rivers Resource and Development Council**
1160 Victory Drive Suite 4 Mankato, MN 56001
Phone 507-345-7418 ext. 5
- **South Central Comprehensive Water Plan Joint Powers Board** P.O. Box 248, New Ulm, MN 56073 Phone 507-233-6642
- **Prairie Country RC&D**
1005 High Avenue NE Willmar, MN 56201-4817
Phone 320-231-0008 Fax 320-235-8151
- **Watsonwan Co. Soil & Water Conservation Dist**
823 1st AVE. S., Suite 2 St. James, MN 56081
Phone 507-375-3104

Footnotes / Bibliography

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

Footnotes / Bibliography (continued)

9. National Coordinated Common Resource Area (CRA) Geographic Database. A Common Resource Area (CRA) map delineation is defined as a geographical area where resource concerns, problems, or treatment needs are similar. It is considered a subdivision of an existing Major Land Resource Area (MLRA) map delineation or polygon. Landscape conditions, soil, climate, human considerations, and other natural resource information are used to determine the geographic boundaries of a Common Resource Area

10. Soil Survey Geographic Database (SSURGO) Tabular and spatial data obtained from NRCS Soil Data Mart at <http://soildatamart.nrcs.gov>. Publication dates vary by county. Component and layer tables were linked to the spatial data via SDV 5.1 and ARCGIS 9.1 to derive the soil classifications presented in these examples. Highly Erodible Land Classification Data obtained from USDA/NRCS EFOTG Section II, County Soil Data. HEL classifications were appended to SSURGO spatial data via an ARCEdit session. Addendum and publication dates vary by county.

11. Lands removed from production through farm bill programs. County enrollment derived from the following: CRP Acres: www.fsa.usda.gov/crpstorpt/07Approved/r1sumyr/mn.htm (7/30/07). CREP Acres: <http://www.bwsr.state.mn.us/easements/crep/easementssummary.html> (7/31/08). WRP Acres: NRCS (8/16/08). Data were obtained by county and adjusted by percent of HUC in the county.

12. Socioeconomic and Agricultural Census Data were taken from the U.S. Population Census, 2000 and 2002 Agricultural Census and adjusted by percent of HUC in the county or by percent of zip code area in the HUC, depending on the level of data available. Data were also taken from MPCA AFO/CAFO counts provided by county for 2005.

13. 1997 NRI Estimates for sheet and rill erosion (WEQ & USLE). The NRI estimates sheet and rill erosion together using the Universal Soil Loss Equation (USLE). The Revised Universal Soil Loss Equation (RUSLE) was not used in the 1997 NRI. RUSLE was not available for previous inventories, therefore the use of USLE was continued to preserve the trending capacity of the NRI database. Wind erosion is estimated using the Wind Erosion Equation (WEQ). For further information visit <http://www.mn.nrcs.usda.gov/technical/nri/findings/erosion.htm>

14. Federally listed endangered and threatened species counts obtained from NRCS Field Office Technical Guide, Section II, Threatened and Endangered List. <http://www.nrcs.usda.gov/Technical/efotg/>. Where listed, Essential fish habitat as established by Magnuson-Stevens Fishery Conservation and Management Act, Public Law 94-265, as amended through October 11, 1996 <http://www.nmfs.noaa.gov/sfa/magact/>

15. Watershed Projects, Plans, Monitoring. Natural Resources Conservation Service, Watershed Projects Planned and Authorized, <http://www.nrcs.usda.gov/programs/watershed/Purpose>. Additional Information on listed individual projects can be obtained from the noted parties.