
**Rapid Watershed Assessment
Resource Profile**

Blue Earth (MN) HUC: 7020009



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 8-Digit Hydrologic Unit Code (HUC) subbasin is located in the Prairie Parkland Ecological Province of Southwestern Minnesota. The Minnesota portion of this largely agricultural watershed is 775,415 acres in size, with an additional 224,640 acres in Iowa draining into the watershed. Nearly ninety eight percent of land within the subbasin is privately owned.

There are 1,604 Farms in the Watershed. Approximately forty two percent of the operations are less than 180 acres in size, forty five percent are from 180 to 1000 acres in size, and the remaining farms are greater than 1000 acres in size.

The main resource concerns on the cropland are wind and water soil erosion, nutrient management, and water quality. Associated with the cropland runoff are increased pollutant loadings to surface waters (mercury, nitrogen, nitrate, turbidity, ammonia, phosphorous, fecal coliform). Declining wildlife habitat is also a concern throughout the subbasin.



County Totals

County	Acres in HUC	% HUC
Blue Earth	79,779.352	10.29
Cottonwood	831.947	0.11
Faribault	304,936.113	39.33
Freeborn	31,774.436	4.10
Jackson	54,028.428	6.97
Martin	303,364.632	39.12
Watowwan	716.513	0.09
Total acres:	775,414.5	100



Physical Description

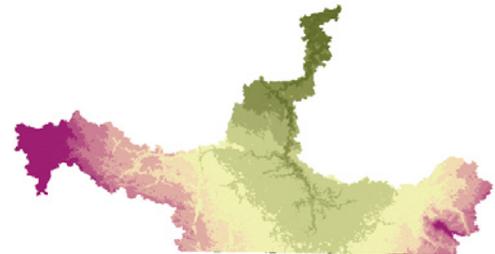
The Blue Earth watershed is located in the Minnesota River Prairie subsection of Minnesota’s ecological classification system. Soils in this HUC are predominantly glacial till plains. Average elevation in the watershed is 1167 feet above sea level, with the highest values being in the western and eastern 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 lands within this watershed are not highly erodible, and are well to moderately well suited to agricultural uses. Predominate land uses are row crops (86%), grass/pasture/hay (5%), and Forest (3.5%).

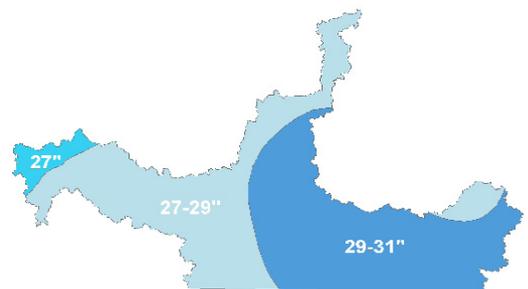
Land use within the Blue Earth Watershed is primarily agricultural, accounting for approximately 84% of the available acres. Two-year corn/soybean rotations comprise approximately 92% of cropped lands within the watershed; small grains, hay, and grasslands enrolled in the Conservation Reserve Program (CRP) make up the majority of the balance.

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

Relief

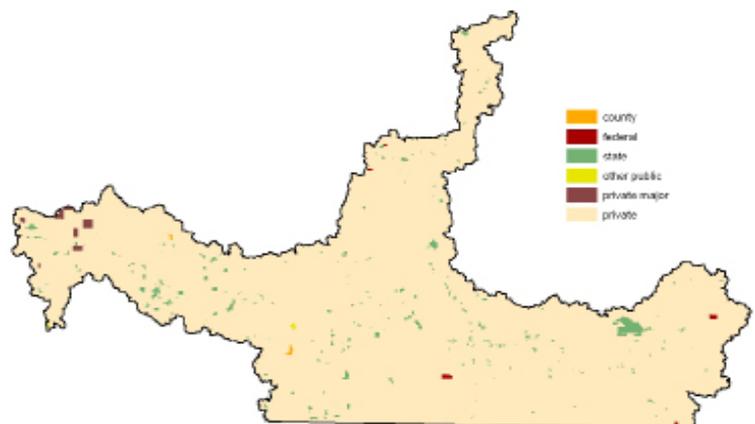


Average Precipitation (inches)



Ownership* ¹

Ownership Type	Acres	% of HUC
Conservancy	0.00	0.00
County	394.25	0.05
Federal	810.95	0.10
Private Major	2,124.23	0.27
State-Misc.	12,616.67	1.63
Other Public	237.43	0.03
Tribal	0.00	0.00
Private	759,248.23	97.92
Ownership Totals:	775,414.50	100

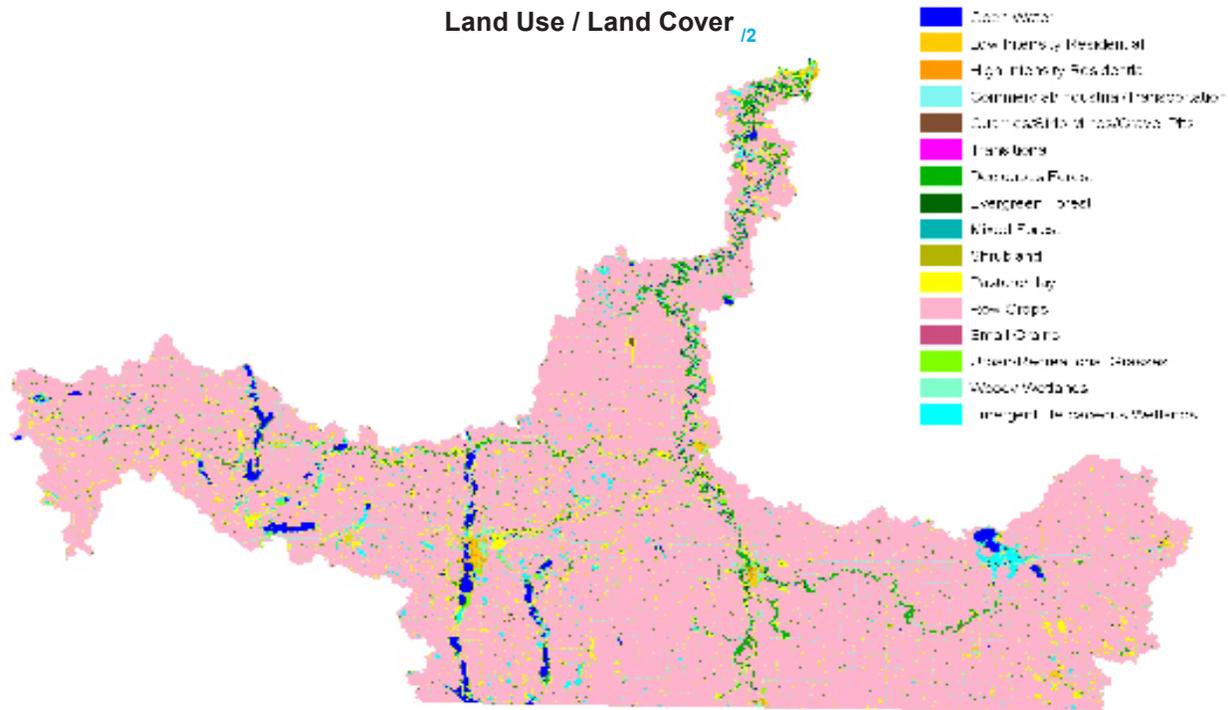


* Ownership totals derived from 2007 MN DNR GAP Stewardship data and are the best suited estimation of land stewardship available on a statewide scale at time of publication. See the bibliography section of this document for further information.

Ownership / Land Use

The Blue Earth Watershed covers an area of 775,415 acres. Nearly ninety eight percent of the land in the watershed is owned by private landholders (759,248 acres). The second largest ownership type is State, with just over 12,600 acres (1.63%), followed by Private Major with approximately 2,125 acres (0.27%), and Federal with 810 Acres (0.10%). County lands account for the smallest ownership class, covering just over 394 acres (0.05%). There are an additional 237 Acres of additional miscellaneous public lands.

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



Ownership / Land Use

Landcover/Use	Public		Private**		Tribal		Total Acres	Percent
	Acres	Percent	Acres	Percent	Acres	Percent		
Forest	884.9	0.11	26,248.19	3.39	0.0	0.00	27,133.06	3.50%
Grain Crops	0.0	0.00	20.01	0.00	0.0	0.00	20.01	0.00%
Grass, etc	1,658.7	0.21	37,680.49	4.86	0.0	0.00	39,339.20	5.07%
Orchards	0.0	0.00	0.00	0.00	0.0	0.00	0.00	0.00%
Row Crops	7,143.1	0.92	656,623.22	84.68	0.0	0.00	663,766.32	85.60%
Shrub etc	8.9	0.00	205.71	0.03	0.0	0.00	214.61	0.03%
Wetlands	3,364.3	0.43	12,213.12	1.58	0.0	0.00	15,577.42	2.01%
Residential/Commercial	229.22	0.03	16,625.42	2.14	0.0	0.00	16,854.64	2.17%
Open Water*	766.91	0.10	11,770.82	1.52	0.0	0.00	12,537.73	1.62%
Totals:	14,056.01	1.81%	761,387	98.19%	0	0.00%	775,414.50	100.00%

* ownership undetermined

** includes private-major

Physical Description (continued)

		ACRES	cu. ft./sec	
Stream Flow Data	USGS 05320000 BLUE EARTH RIVER NEAR RAPIDAN, MN	2006 Total Avg.	1972.0	
		May – Sept. Avg.	646.6	
		ACRES/MILES	PERCENT	
Stream Data¹⁴ (*Percent of Total HUC Stream Miles)	Total Miles – Major (100K Hydro GIS Layer)	1123.9	---	
	303d/TMDL Listed Streams (DEQ)	265.4	23.6%	
Riparian Land Cover/Land Use¹⁵ (Based on a 100-foot buffer on both sides of all streams in the 100K Hydro GIS Layer)	Dev/Barren	521.9	1.93	
	Fallow	0	0	
	Forest	4,638.1	17.11	
	Grain Crops	0.0	0.0	
	Grass/Pasture	4,456.259	12.5	
	Orchards/Vine	0	0	
	Row Crops	13,104.5	48.35	
	Shrub/Range	0.6	0.00	
	Water	3,208.1	11.84	
	Wetlands	2,618.3	9.66	
	Total Buffer Acres		27,102	---
Crop and Pastureland Land Capability Class¹⁶ (Croplands & Pasturelands Only) (1997 NRI Estimates for Non-Federal Lands Only)	1 – slight limitations	98,200	14%	
	2 – moderate limitations	428,300	62%	
	3 – severe limitations	138,300	20%	
	4 – very severe limitations	18,400	3%	
	5 – no erosion hazard, but other limitations	3,700	1%	
	6 – severe limitations; unsuitable for cultivation; limited to pasture, range, forest	1,300	0.2%	
	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		688,200	---
	TYPE OF LAND	ACRES	% of Irrigated Lands	% of HUC
Irrigated Lands¹⁷ (1997 NRI Estimates for Non-Federal Lands Only)	Cultivated Cropland	0	0%	0%
	Uncultivated Cropland	0	0%	0%
	Pastureland	0	0%	0%
	Total Irrigated Lands	0	0%	0%

Assessment of Waters

Section 303(d) of the Clean Water Act states that water bodies with impaired use(s) must be placed on a state's impaired waters list. A water body is "Impaired" or polluted when it fails to meet one or more of the Federal Clean Water Act's water quality standards. Federal Standards exist for basic pollutants such as sediment, bacteria, nutrients, and mercury. The Clean Water Act requires the Minnesota Pollution Control Agency (MPCA) to identify and restore impaired waters.



Listed Stream / Reach ¹⁸	Impairment	Affected Use
Watowan River; Perch Cr to Blue Earth R	Mercury, Fecal Coliform, Turbidity	Aquatic Life, Aquatic Recreation, Aquatic Consumption
Blue Earth River; Le Sueur R to Minnesota R	Mercury, Fecal Coliform, Turbidity	Aquatic Life, Aquatic Recreation, Aquatic Consumption
Elm Creek; Cedar Cr (Cedar Run) to Blue Earth R	Fecal Coliform, Turbidity	Aquatic Life, Aquatic Recreation
Center Creek; Lily Cr to Blue Earth R	Ammonia, Fish IBI, Fecal Coliform, Turbidity	Aquatic Life, Aquatic Recreation
Blue Earth River; West Br Blue Earth R to Coon Cr	Mercury, Fish IBI, Fecal Coliform, Turbidity	Aquatic Life, Aquatic Recreation, Aquatic Consumption
JD #3; Headwaters to Elm Cr	Low Dissolved Oxygen, Turbidity	Aquatic Life
Cedar Creek; Begin Class 2C to Cedar Lk	Ammonia, Low Dissolved Oxygen	Aquatic Life
Blue Earth River; Willow Cr to Watowan R	Mercury	Aquatic Life
Blue Earth River; East Br Blue Earth R to South Cr	Mercury, Fish IBI, Turbidity	Aquatic Life, Aquatic Consumption
Blue Earth River; Rapidan Dam to Le Sueur R	Mercury, Turbidity	Aquatic Life, Aquatic Consumption
Blue Earth River; Watowan R to Rapidan Dam	Mercury	Aquatic Consumption
Blue Earth River; Center Cr to Elm Cr	Mercury	Aquatic Consumption
Blue Earth River; Elm Cr to Willow Cr	Mercury, Fish IBI, Turbidity	Aquatic Life, Aquatic Consumption
Blue Earth River; South Cr to Center Cr	Mercury, Fish IBI	Aquatic Life, Aquatic Consumption
Blue Earth River; Badger Cr to East Br Blue Earth R	Mercury	Aquatic Consumption
Blue Earth River; Coon Cr to Badger Cr	Mercury	Aquatic Consumption
Blue Earth R, Mid Branch; IA Border to West Br Blue Earth R	Mercury	Aquatic Consumption
Blue Earth River, East Branch ; Brush Cr to Blue Earth R	Fish IBI	Aquatic Life
Brush Creek; Headwaters to E Br Blue Earth R	Fish IBI	Aquatic Life
Blue Earth River, East Branch ; Headwaters to Brush Cr	Fish IBI	Aquatic Life
Cedar Creek; Begin Class 2C to Cedar Lk	Ammonia, Low Dissolved Oxygen	Aquatic Life
Minnesota River; Blue Earth R to Shanaska Cr	Mercury, Phosphorous, Fecal Coliform, Turbidity	Aquatic Life, Aquatic Recreation, Aquatic Consumption
Minnesota River; Minneopa Cr to Blue Earth R	Mercury, Phosphorous	Aquatic Consumption

Assessment of Waters

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

2006 Minnesota TMDL Listed Lakes - Blue Earth



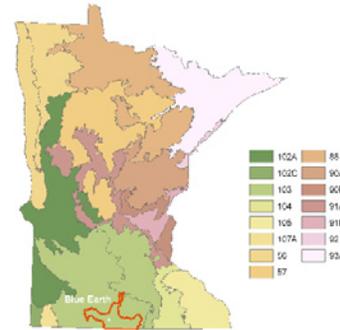
Listed Lake	Impairment	Affected Use
George	Excess Nutrients	Aquatic Recreation
Sisseton	Excess Nutrients	Aquatic Recreation
Budd	Excess Nutrients, PCB's	Aquatic Recreation and Aquatic Consumption
Hall	Excess Nutrients	Aquatic Recreation
Amber	Excess Nutrients	Aquatic Recreation
Big Twin	Excess Nutrients, Mercury	Aquatic Consumption

Common Resource Areas

The Blue Earth Watershed is located within a single common resource area, CRA 103.1.^{/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.



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 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.

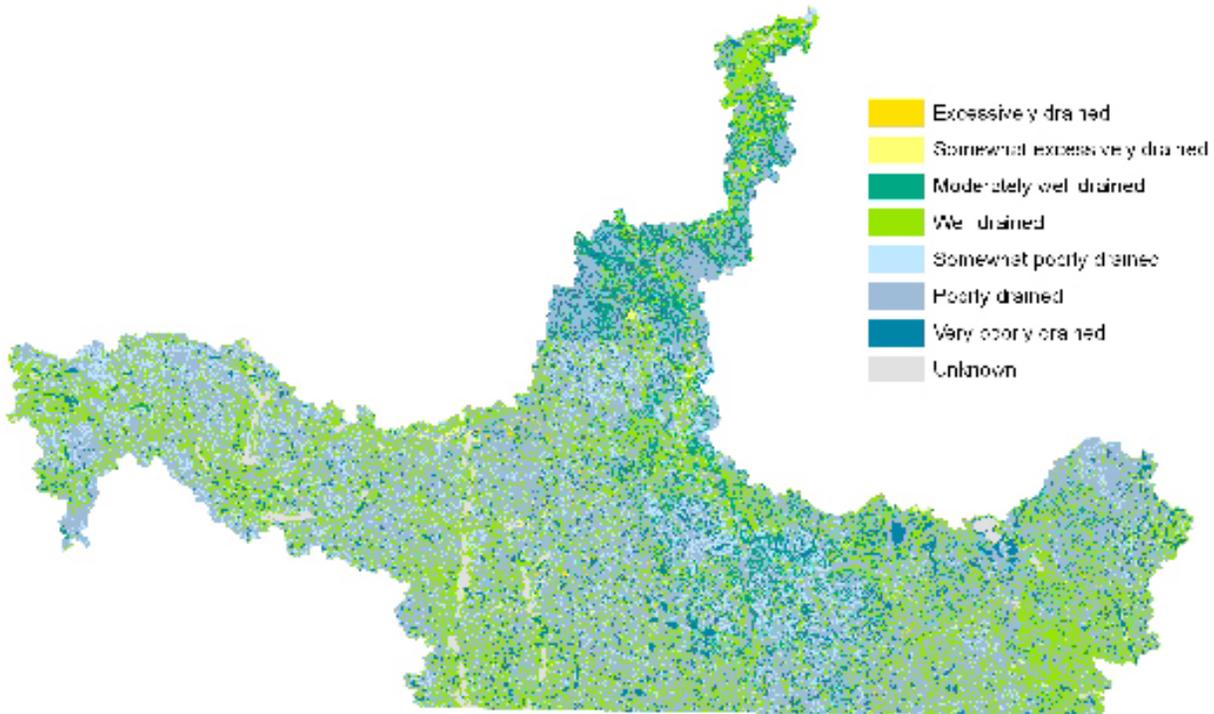
The western, southern and eastern boundaries of the watershed are end moraines formed by Pleistocene glaciers. Various ground moraines are also contained in the eastern half of the watershed. In general, these morainal complexes exhibit a undulating to hilly landscape with slopes ranging from 2-12%. 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
<http://soildatamart.usda.gov> to download SSURGO certified soil tabular and spatial data.

Drainage Classification

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

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



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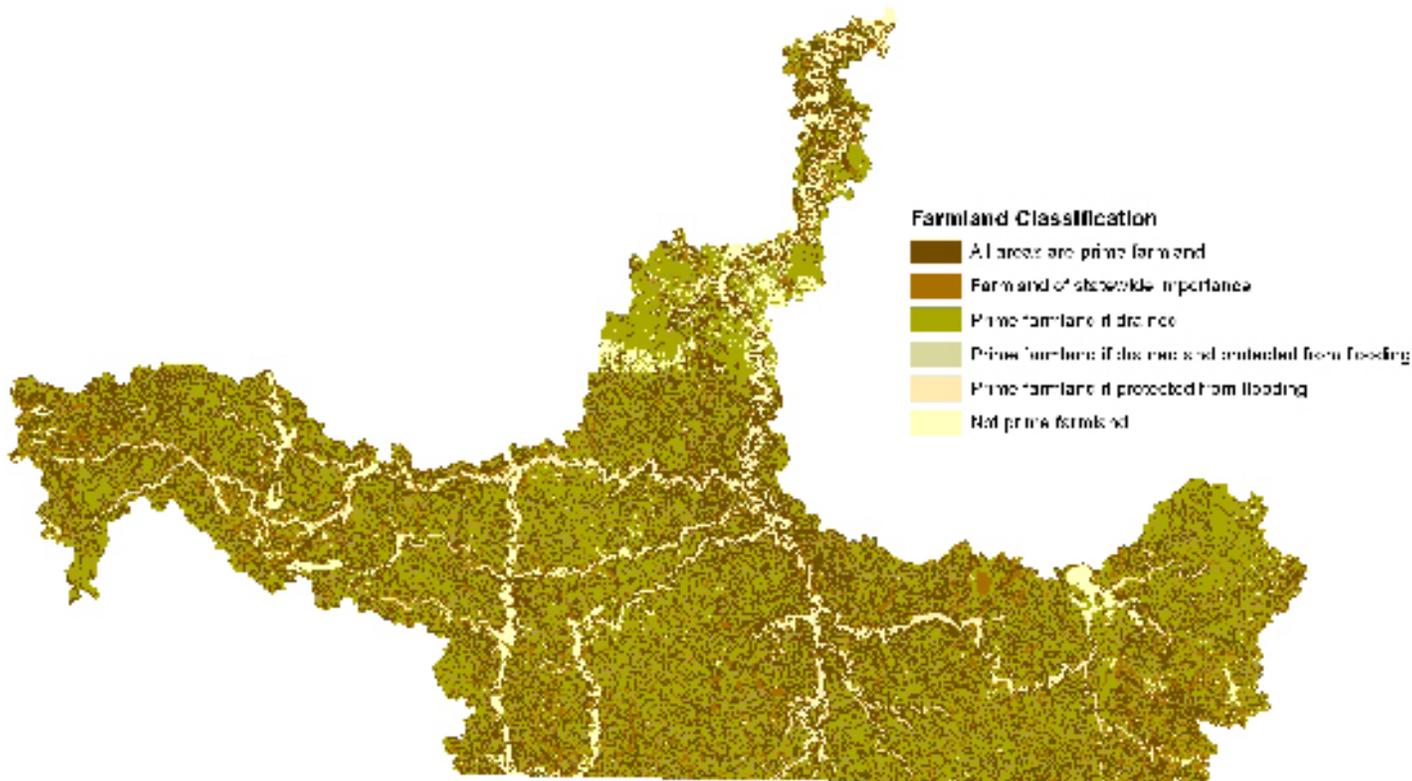
 certified soil tabular and spatial data.

Farmland Classification

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

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

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



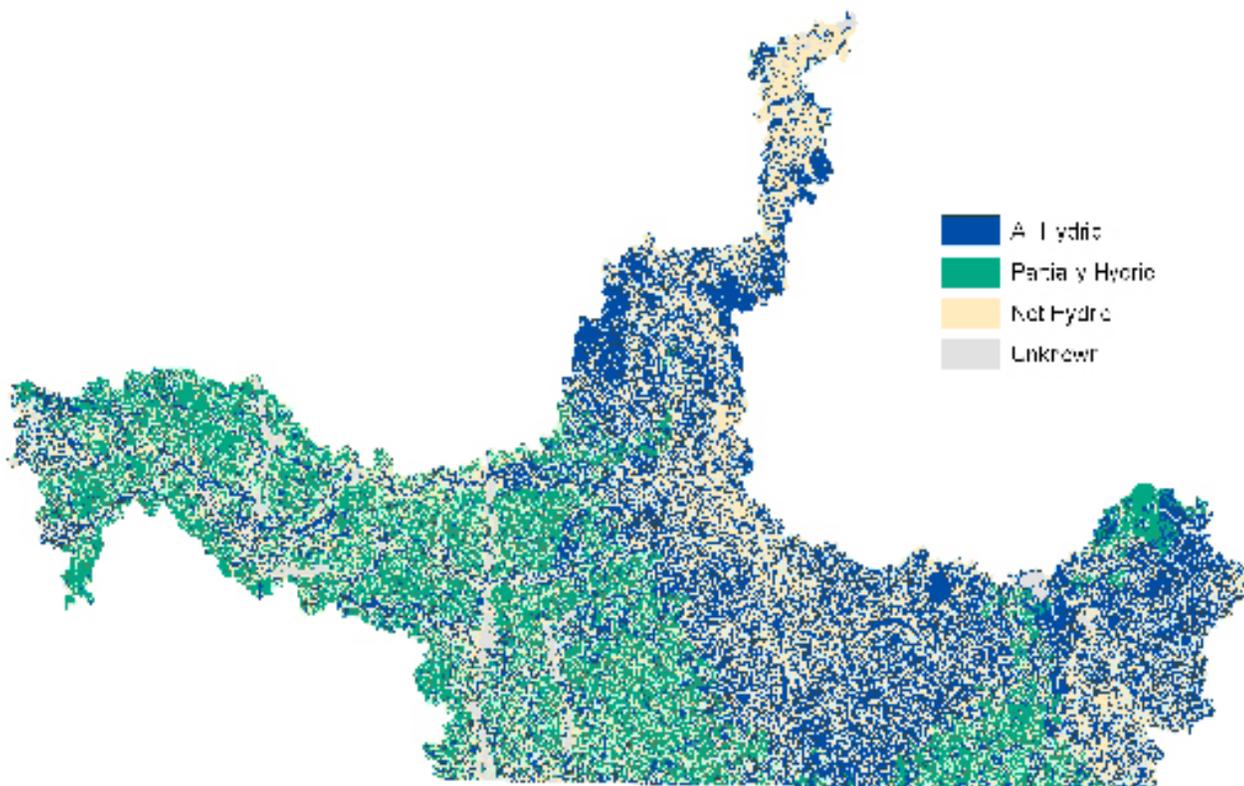
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Hydric Soils

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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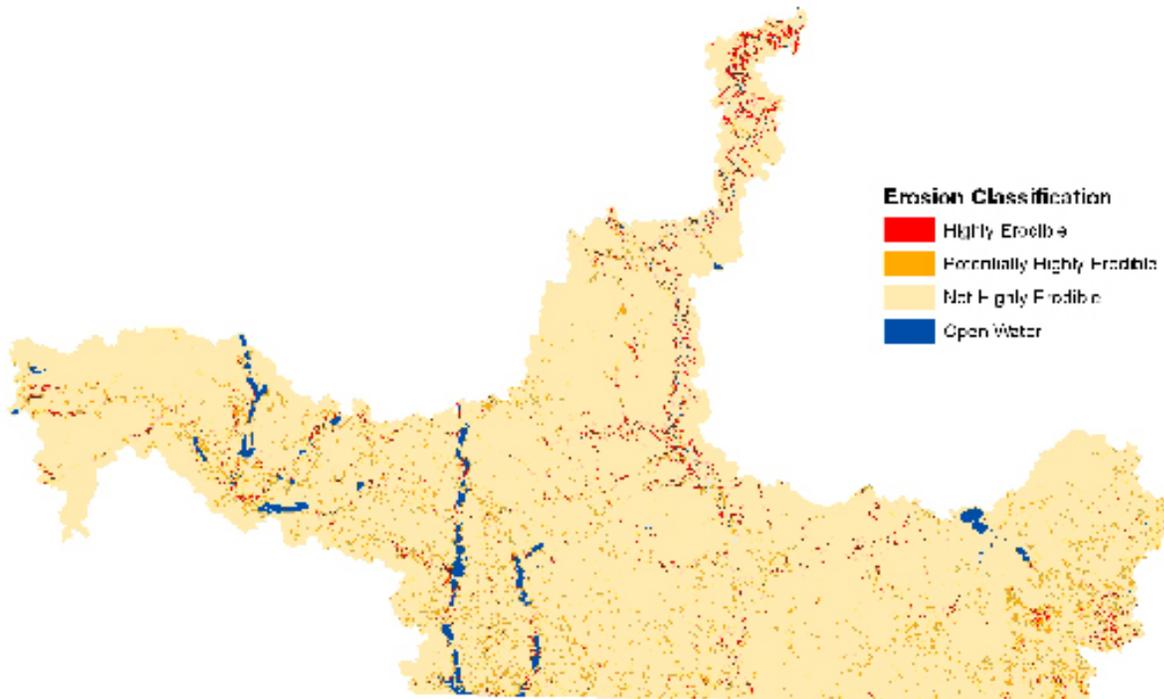
 certified soil tabular and spatial data.

Highly Erodible Land (HEL)

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

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

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

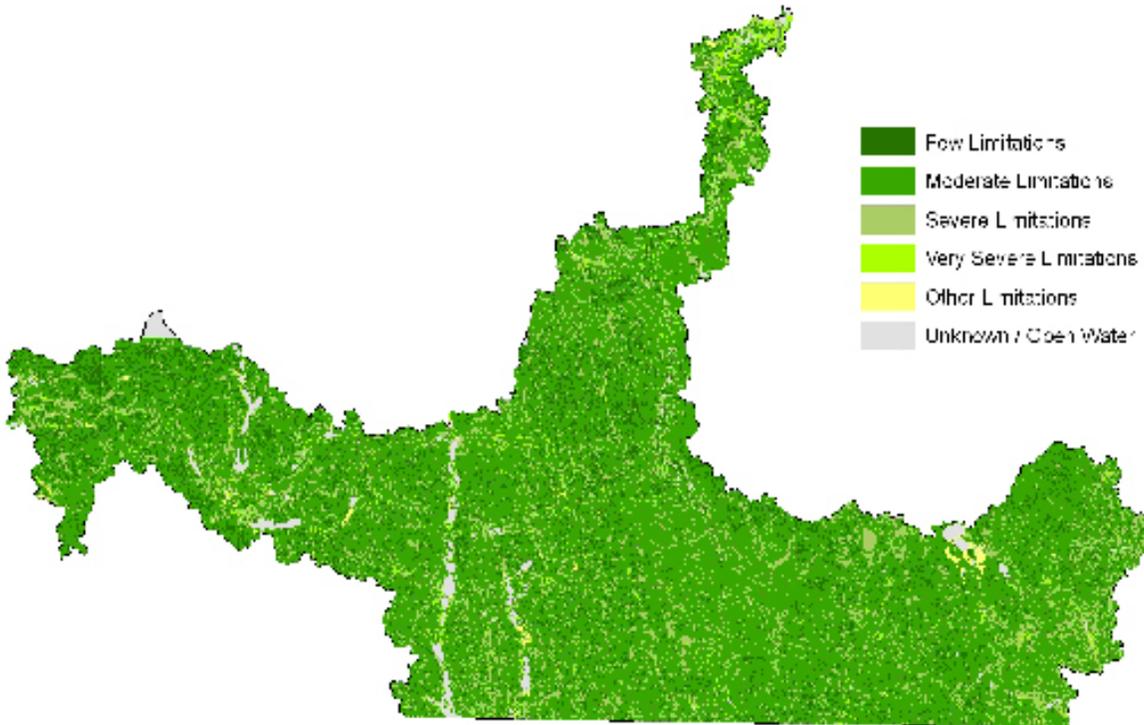


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Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management.

The criteria used in grouping the soils does not include major and generally expensive land forming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.



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Performance Results System and Other Data

NRCS Conservation treatment practices applied or prescribed within the Blue Earth watershed in the three year reporting period have primarily concentrated on Nutrient Management (11,369 acres/yr average), Conservation Crop Rotations (10,625 acres), Pest Management (9,630 acres), Conservation Tillage (9,434 acres), and Wildlife Habitat (1,008 acres). Significant efforts have been made in areas of air quality/wind erosion management, with the addition of an average 5,387 feet of windbreak yearly.

Conservation Treatment Acres	NRCS Practice Code	FY 04	FY 05	FY 06	Avg/Year	Total
Waste Management (Number)	313, 317, 359	0	0	0	0	0
Buffers (Acres)	391, 393	104	250	246	200	600
Erosion Control (Acres)	311, 332, 589, 386, 412, 600, 601, 603, 380, 650	3	2	3	3	8
Irrigation Water Management (Acres)	449	0	0	0	0	0
Wind Break (ft)	380	0	6730	9432	5387	16162
Atmospheric Resource Quality Management (Acres)	370	0	0	0	0	0
Nutrient Management (Acres)	590	2790	27942	3376	11369	34108
Pest Management (Acres)	595	2573	25661	655	9630	28889
Prescribed Grazing (Acres)	528, 472, 528A	224	748	1431	801	2403
Prescribed Burning (Acres)	338	0	90	0	30	90
Trees & Shrubs (Acres)	612, 666	12	0	2	5	14
Conservation Tillage (Acres)	329A, 329B, 329C	5518	14035	8750	9434	28303
Conservation Crop Rotations (Acres)	328	8269	13915	9691	10625	31875
Cover Crops (Acres)	340	0	132	0	44	132
Wildlife Habitat (Acres)	644, 645	179	993	1853	1008	3025
Brush Management (Acres)	314	0	0	0	0	0
Restoration of Declining Habitat (Acres)	643	74	72	830	325	976
Wetland Wildlife Habitat Management (Acres)	644	1	606	17	208	624
Wetlands (Acres)	657, 658, 659	197	509	223	310	929
LANDS REMOVED FROM PRODUCTION THROUGH FARM BILL PROGRAMS¹¹						
Program					Acres	
Conservation Reserve Program (CRP)					6025	
Wetland Restoration Program (WRP)					499	
Conservation Reserve Enhancement Program (CREP)					6498	

Socioeconomic and Agricultural Data (Relevant)

Estimates for the Blue Earth subbasin indicate a population of approximately 37,600 people. Median household income throughout the district is just under \$37,000 yearly, roughly 80% of the national average. Sixty seven percent of the population over the age of 18 is active in the workforce, and approximately 10% of the residents in the watershed are below the national poverty level.



There are 1,604 Farms in the Watershed. Approximately forty two percent of the operations are less than 180 acres in size, forty five percent are from 180 to 1000 acres in size, and the remaining farms are greater than 1000 acres in size.

Blue Earth (MN) HUC# 7020009 ¹²		
Population Data	Watershed Population	37,595
	Unemployment Rate	4.03%
	Median Household Income	36,932
	% below poverty level	10%
	Median Value of Home	69,938
Farms	# of Farms	1,604
	# of Operators	1604
	# of Full Time Operators	1200
	# of Part Time Operators	404
	Total Crop/Pasturelands	668,200
Farm Size	1 to 49 Acres	377
	50 to 179 Acres	303
	180 to 499 Acres	432
	500 to 999 Acres	286
	1,000 Acres or more	207
Livestock & Poultry	Cattle - Beef	45,525
	Cattle - Dairy	7,243
	Chicken	60,445
	Swine	983,942
	Turkey	305,377
	Other	9,775
	Animal Count Total:	1,412,308
Total Permitted AFOs:	964	
Chem (Acres Applied)	Insecticides	43,606.05
	Herbicides	426,978.84
	Wormicides	6,934.55
	Fruiticides	512.88
	Total Chemicals	478,032.32
	% State Chemical Totals	3.35%

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:

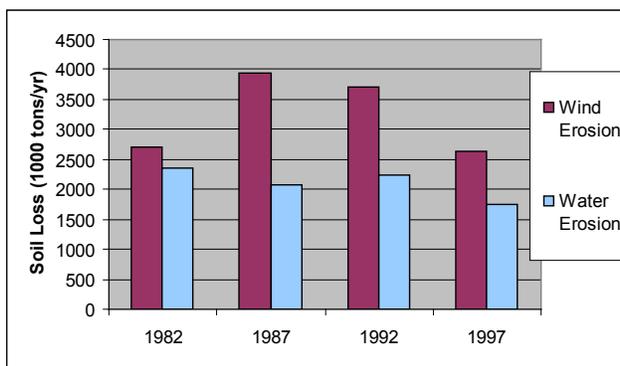


- **Soil Quality, Excessive Sheet and Rill Erosion.** Soil Erosion and Deposition has ranked as a top concern in each county within the watershed. Areas with soil loss exceeding 2 x”T” or exhibiting excessive gully erosion are identified as high priorities in local water plans.
- **Soil Quality, Excessive Wind Erosion.** Prairie Topography makes wind erosion a major conservation issue. Wind erosion physically removes the lighter, less dense soil constituents such as organic matter, clays, silts, thus removing the fertile part of the soil and lowering productivity.
- **Surface Water Quality, Nutrients.** Reduction of priority pollutants and sediments in surface waters is a priority issue throughout the watershed. Excessive amounts of sediments, nutrients, and bacteria degrade the water quality causing an unbalanced fish community with depressed populations and limited diversity.
- **Ground Water Quality, Nutrients, Organics, Animal and Human Waste.** Aging septic systems, feedlot runoff, cropland nutrient runoff, tilling practices, and abandoned wells all pose significant threats to groundwater quality throughout the region.
- **Installation of waste control systems on High Priority Feedlots.** Feedlots discharging pollutants to designated public waters or a sinkhole or shallow soils overlying fractured bedrock or within 100 feet of a water well pose threats to both surface and groundwater quality. Installation at operations either cited by the MPCA or determined to pose significant hazards is the foremost priority.

- Sheet and rill erosion by water on the cropland and pastureland decreased by approximately 606,300 (25.83%) tons of soil from 1982 to 1997.

- NRI estimates indicate wind erosion rates declined by 55,200 tons (2.05%) of soil from 1982 to 1997

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Federally Listed Threatened And Endangered Species ¹¹⁴	
ENDANGERED SPECIES	CANDIDATE SPECIES
Fish – Topeka Shiner	Insect – Dakota Skipper
THREATENED SPECIES	Species of Special Concern
Plants – Prairie Bush Clover	Common Moorhen, Eastern Spotted Skunk
Essential Habitat - -Prairie river and stream habitat for the Topeka Shiner. Gravelly soil, dry to mesic prairie for the Prairie bush-clover	

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 River 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, 2007. This is the complete GAP Stewardship database containing land ownership information for the entire state of Minnesota. Date of source material is variable and ranges from 1976 to 2007, although a date range of 1983 to 1985 predominates. Land interest is expressed only when some organization owns or administers more than 50% of a forty except where DNR could create sub-forty accuracy polygons.
2. National Land Cover Dataset (NLCD) - Originator: U.S. Geological Survey (USGS); Publication date: 19990631; Title: Minnesota Land Cover Data Set, Edition: 1; Geospatial data presentation form: Raster digital data; Publisher: U.S. Geological Survey, Sioux Falls, SD, USA.
3. Ownership layer classes grouped to calculate Public ownership vs. Private and Tribal ownership by Minnesota NRCS Rapid Watershed Assessment Staff. Land cover / Land use data was then extracted from the National Landcover Dataset Classification System and related to ownership class polygons.
4. USGS 1:100,000 Hydrography Layer .This data set represents all features coded as ‘rivers’ on the USGS 1:100,000-scale DLG Hydrography data set. This current version was converted to ARC/INFO by the Land Management Information Center and edge-matched across map sheet boundaries. Minnesota DNR made further modifications to the files, verified lake feature identifiers, and created a state layer from the separate 100k data. The Hydro 100k layer was compared to MPCA’s 303(d) data to derive percentage of listed waters.
5. Land Cover / Land Use / Hydro 100k Buffer. Using the 100k Hydrology dataset, All streams within HUC were spatially buffered to a distance of 100 ft. National Landcover Dataset attributes were extracted for the spatial buffer to demonstrate the vegetation and landuse in vulnerable areas adjacent to waterways.
6. Land Capability Class. ESTIMATES FROM THE 1997 NRI DATABASE (REVISED DECEMBER 2000) REPLACE ALL PREVIOUS REPORTS AND ESTIMATES. Comparisons made using data published for the 1982, 1987, or 1992 NRI may produce erroneous results. This is because of changes in statistical estimation protocols and because all data collected prior to 1997 were simultaneously reviewed (edited) as 1997 NRI data were collected. All definitions are available in the glossary. In addition, this December 2000 revision of the 1997 NRI data updates information released in December 1999 and corrects a computer error discovered in March 2000. For more information: <http://www.nrcs.usda.gov/technical/NRI/>
7. 1997 NRI Irrigated Land Estimates. Irrigated land: Land that shows evidence of being irrigated during the year of the inventory or during two or more years out of the last four years. Water is supplied to crops by ditches, pipes, or other conduits. Water spreading is not considered irrigation; it is recorded as a conservation practice. [NRI-97] For more information: <http://www.nrcs.usda.gov/technical/NRI/>
8. 303(d) 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. Geological description: Van Voast, W. A., Broussard, W. L., and Wheat, D. E., 1972, Water resources of the Minnesota River-southwestern Minnesota: U.S. Geol. Survey Hydrol. Inv. Atlas, HA-391.

11. Lands removed from production through farm bill programs. County enrollment derived from the following: CRP Acres: www.fsa.usda.gov/crpstorpt/07Approved/r1sumyr/mn.htm (7/30/04). CREP Acres: <http://www.bwsr.state.mn.us/easements/crep/easementssummary.html> (7/31/03). WRP Acres: NRCS (8/16/04). Data were obtained by county and adjusted by percent of HUC in the county.

12. Socioeconomic and Agricultural Census Data were taken from the U.S. Population Census, 2000 and 2002 Agricultural Census and adjusted by percent of HUC in the county or by percent of zip code area in the HUC, depending on the level of data available. Unemployment statistics obtained from the Bureau of Labor Statistics - Labor Force Data by County, 2006 Annual Averages <http://www.bls.gov> Data were also taken from MPCA AFO/CAFO counts provided by county for 2005.

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

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

15. Watershed Projects, Plans, Monitoring. Natural Resources Conservation Service, Watershed Projects Planned and Authorized, <http://www.nrcs.usda.gov/programs/watershed/Purpose>.