

Rapid Watershed Assessment

Little Fork

(MN) HUC: 09030005



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 Little Fork 8-digit Hydrological Unit Code (HUC) Subbasin is located in the Northern Lakes and Forests and Northern Minnesota Wetlands ecoregions of Northern Minnesota. This watershed is 1,179,580 acres in size. Approximately 25 percent of the land is held by private landowners.

There are 227 Farms in the Little Fork Watershed. Approximately 62 percent of the operations are less than 180 acres in size, 37 percent are 180 to 1,000 acres in size, and the remaining farms are greater than 1,000 acres. Average farm size is 36 acres.

The main resource concerns in the basin are soil erosion, management of excessive wetness, wetland and woodland management, and the short growing season. Additional concerns include pasture management, dryness in sandy soils, and surface water quality.

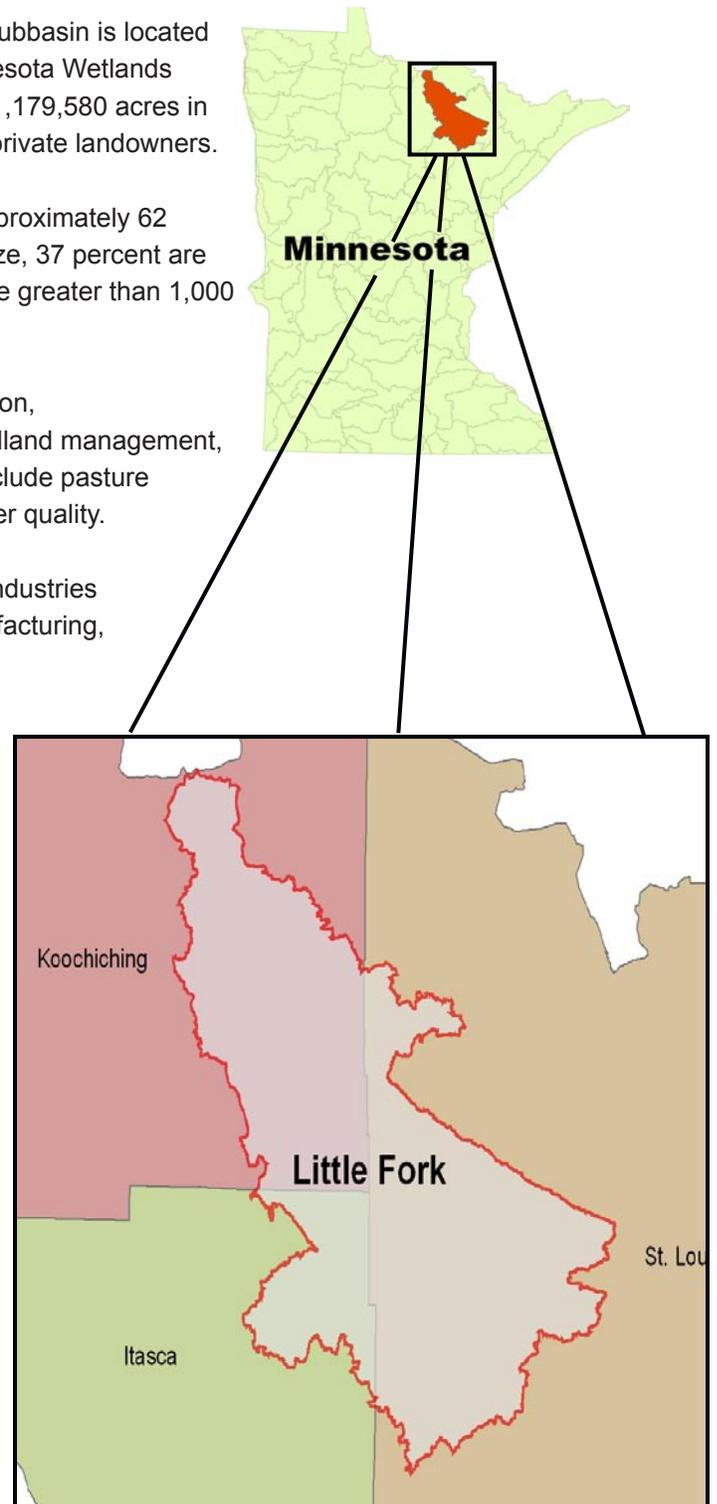
As with many areas of Northern Minnesota, principal industries include forest product harvesting, forest product manufacturing, farming and tourism.

The Little Fork River watershed is the third largest watershed, in terms of size, in the Minnesota portion of the Rainy River Basin.

The greater Rainy River Basin is home to some of Minnesota's finest forest and water resources. Voyageurs National Park and the Boundary Waters Canoe Area Wilderness (BWCA) are located within the greater basin, as are several of the state's most famous walleye fisheries and top-notch trout streams.

County Totals

County	Acres in HUC	% HUC
Koochiching	459,701	39.0%
St. Louis	570,694	48.4%
Itasca	149,185	12.6%
Total acres:	1,179,580	100%



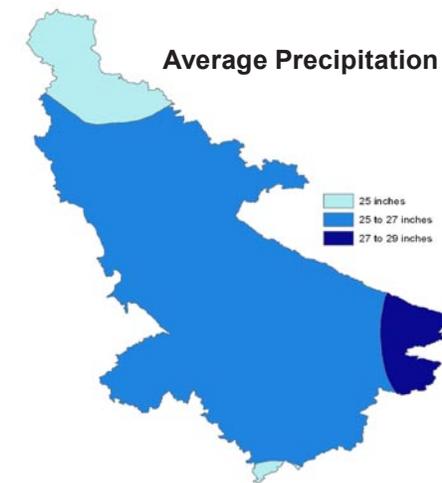
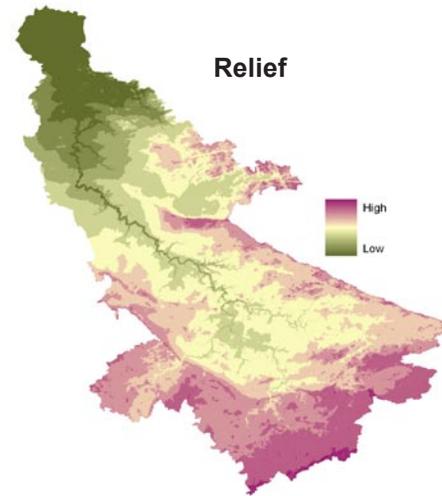
Physical Description

The Little Fork watershed includes two Ecological Classification System subsections. The watershed is located predominately in the Ecological Classification System's Little Fork-Vermilion Uplands subsection with some Agassiz Lowlands in the western and northern reaches of the watershed. Minnesota ecoregions included in the are Northern Lakes and Forests and Northern Minnesota Wetlands.

Average elevation in the watershed is 1114 feet above sea level, with the highest values being in the Southern portions of the watershed. The Little Fork River watershed has its headwaters in Itasca and St. Louis counties. Its waters flow into Koochiching County eventually reaching the Rainy River approximately 11 miles west of International Falls.

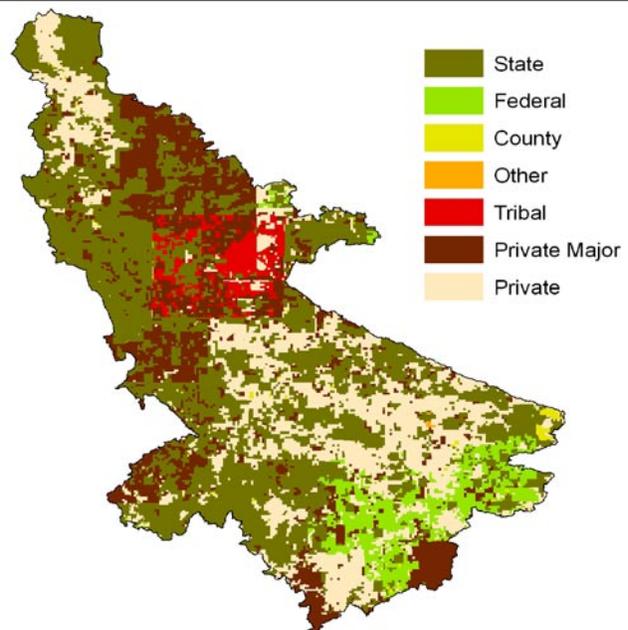
Precipitation in the watershed ranges from 23 to 29 inches annually. Most lands within this watershed are not highly erodible, and the soils are often hydric. Much of the land in the subbasin is not suited or poorly suited to agricultural uses.

Development pressure is negligible throughout this subbasin, with occasional lands being parceled out for timber production or recreational use.



Ownership

Ownership Type	Acres	% of HUC
Conservancy	-	-
County	5,697	0.5
Federal	79,657	6.8
State	528,493	44.8
Other	477	0.0
Tribal	41,520	3.5
Private Major	232,140	19.7
Private	291,595	24.7
Total Acres:	1,179,580	100

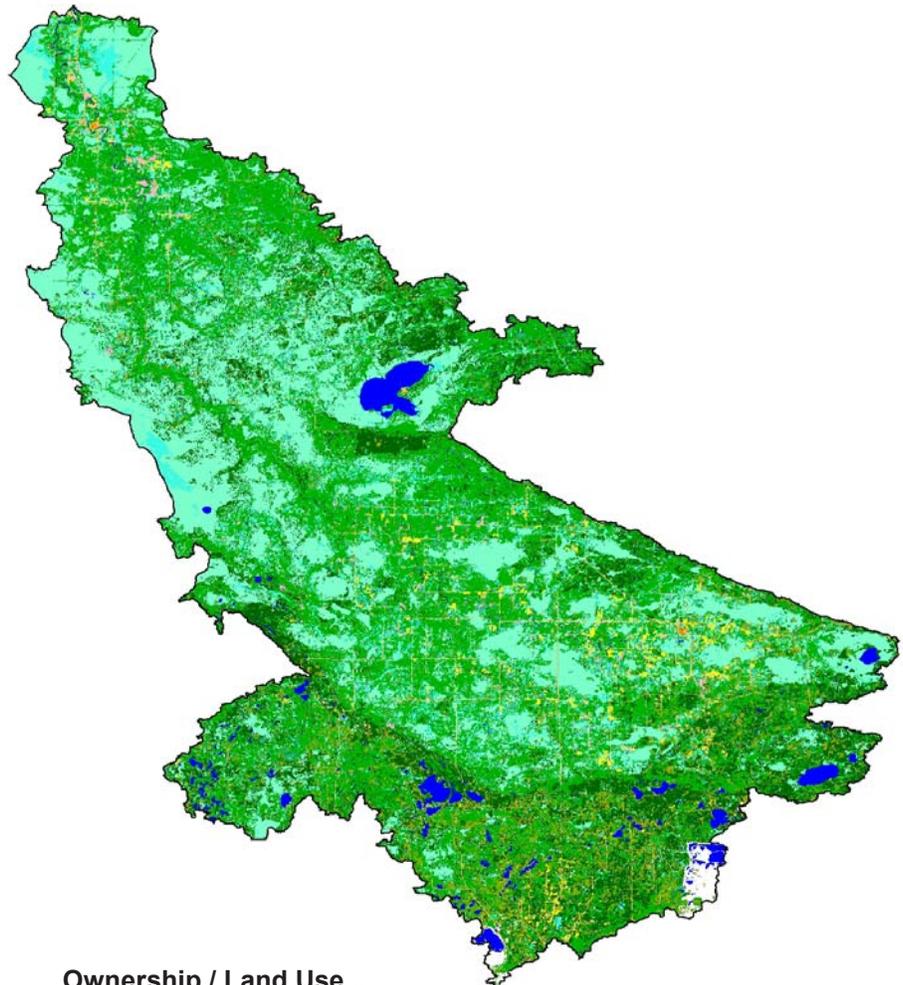


* Ownership totals derived from 2007 MN DNR GAP Stewardship and are the best suited estimation of land stewardship available on a statewide scale at time of publication. See the bibliography section of this document for further information.

Ownership / Land Use

The Little Fork Watershed covers an area of 1,179,580 acres. Nearly forty five percent of the land in the watershed is owned or managed by state entities (528,493 acres). The second largest ownership type is Private, with 291,595 acres (24.7%), followed by Private Major (Corporate) land holdings of 232,140 acres (19.7%), Federal with 79,657 acres (6.8%), and Tribal owned lands amounting to 41,520 acres (3.5%). The smallest ownership class is County, amounting to 5,697 acres (0.5%). There are an additional 477 acres of miscellaneous "Other Public" lands, and ownership data indicates no major conservancy land holdings in the region. Land use by ownership type is represented in the table below.

Land Use / Land Cover ^{/2}



Ownership / Land Use ^{/3}

Landcover/Use	Public		Private**		Tribal		Total Acres	Percent
	Acres	% Public	Acres	% Private	Acres	% Tribal		
Forest	321,679	27.3%	304,252	25.8%	16,397	1.4%	642,327	54.5%
Grass, etc	5,252	0.4%	27,269	2.3%	175	0.0%	32,696	2.8%
Orchards	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Row Crops	1,094	0.1%	6,281	0.5%	25	0.0%	7,401	0.6%
Shrub etc	27,917	2.4%	41,461	3.5%	358	0.0%	69,735	5.9%
Wetlands	248,636	21.1%	116,800	9.9%	19,336	1.6%	384,772	32.6%
Residential/Commercial	4,009	0.3%	11,486	1.0%	228	0.0%	15,722	1.3%
Open Water*	5,451	0.5%	16,550	1.4%	4,946	0.4%	26,947	2.3%

* ownership undetermined

** includes private-major

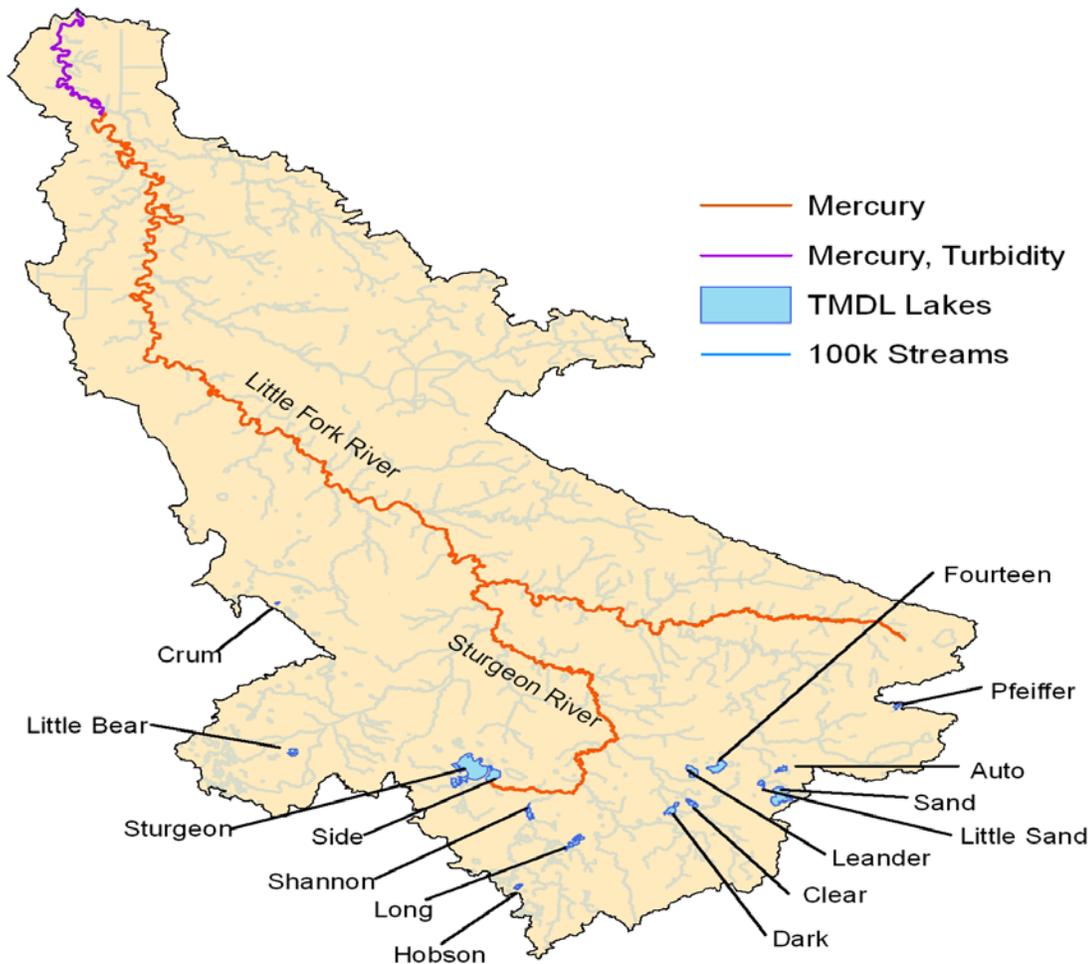
Watershed Totals:	614,038	52.05%	524,099	44.4%	41,464	3.5%	1,179,580	100%
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Physical Description (continued)

		cu. ft/sec		
Stream Flow Data	USGS 05131500 LITTLE FORK RIVER AT LITTLEFORK, MN	Total Avg.	1,050.5	
		May – Sept. Yield	1,376	
Stream Data ¹⁴ (*Percent of Total HUC Stream Miles)		ACRES/MILES	PERCENT	
	Total Miles – Major (100K Hydro GIS Layer)	1,706.5	---	
	Total Miles –303d/TMDL Listed Streams	205.6	12%	
Riparian Land Cover/Land Use ¹⁵ (Based on a 100-foot buffer on both sides of all streams in the 100K Hydro GIS Layer)	Land Use Type	Acres	Percent	
	Forest	22,372	54.7%	
	Grain Crops	0	0.0%	
	Grass, etc	1,040	2.5%	
	Orchards	0	0.0%	
	Row Crops	312	0.8%	
	Shrub etc	1,865	4.6%	
	Wetlands	10,561	25.8%	
	Residential/Commercial	472	1.2%	
	Open Water	4,274	10.5%	
		Total Buffer Acres	40,895.8	---
Crop and Pastureland Land Capability Class ¹⁶ (Croplands & Pasturelands Only) (1997 NRI Estimates for Non-Federal Lands Only)	1 – slight limitations	0	0%	
	2 – moderate limitations	11,200	13%	
	3 – severe limitations	47,000	56%	
	4 – very severe limitations	17,100	20%	
	5 – no erosion hazard, but other limitations	0	0%	
	6 – severe limitations; unsuitable for cultivation; limited to pasture, range, forest	8,600	10%	
	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 Crop & Pastureland	83,900	---
Irrigated Lands ¹⁷ (1997 NRI Estimates for Non-Federal Lands Only)	TYPE OF LAND	ACRES	% of Irrigated Lands	% of HUC
	Cultivated Cropland	0	0%	0%
	Uncultivated Cropland	0	0%	0%
	Pastureland	0	0%	0%
		Total Irrigated Lands	0	0%

Assessment of Waters ¹⁸

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.



Waterbody	Impairment	Affected Use	Waterbody	Impairment	Affected Use
Little Fork River Beaver Brook to Rainy R	Mercury, Turbidity	Aquatic Consumption and Life	Little Bear	Mercury	Aquatic Consumption
Little Fork River Headwaters (Lost Lk) to Rice R	Mercury	Aquatic Consumption	Crum	Mercury	Aquatic Consumption
Little Fork River Rice R to Beaver Cr	Mercury	Aquatic Consumption	Pfeiffer	Mercury	Aquatic Consumption
Little Fork River Beaver Cr to Sturgeon R	Mercury	Aquatic Consumption	Auto	Mercury	Aquatic Consumption
Little Fork River Sturgeon R to Willow R	Mercury	Aquatic Consumption	Little Sand	Mercury	Aquatic Consumption
Little Fork River Willow R to Valley R	Mercury	Aquatic Consumption	Sand	Mercury	Aquatic Consumption
Little Fork River Valley R to Prairie Cr	Mercury	Aquatic Consumption	Dark	Mercury	Aquatic Consumption
Little Fork River Prairie Cr to Nett Lake R	Mercury	Aquatic Consumption	Fourteen	Mercury	Aquatic Consumption
Little Fork River Nett Lake R to Cross R	Mercury	Aquatic Consumption	Leander	Mercury	Aquatic Consumption
Little Fork River Cross R to Beaver Bk	Mercury	Aquatic Consumption	Clear	Mercury	Aquatic Consumption
Sturgeon River Bear R to Little Fork R	Mercury	Aquatic Consumption	Long	Mercury	Aquatic Consumption
Sturgeon River E Br Sturgeon R to Dark R	Mercury	Aquatic Consumption	Hobson	Mercury	Aquatic Consumption
Sturgeon River Dark R to Bear R	Mercury	Aquatic Consumption	Shannon	Mercury	Aquatic Consumption
Sturgeon River Headwaters to E Br St	Mercury	Aquatic Consumption	Side	Mercury	Aquatic Consumption

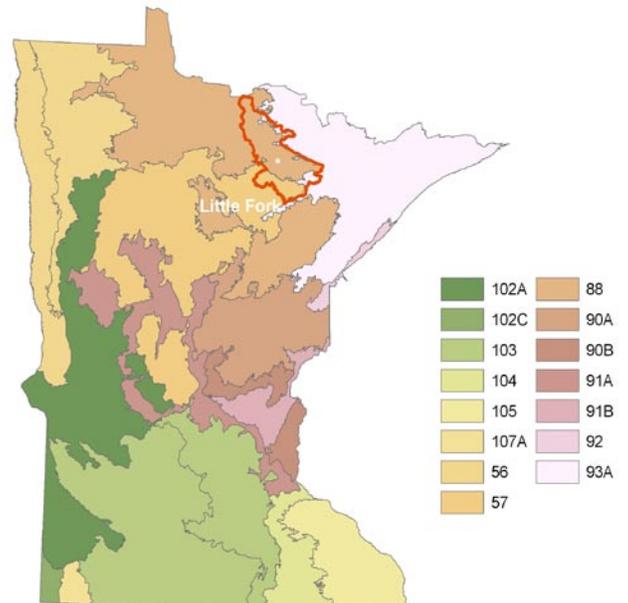
Common Resource Areas ⁹

The Little Fork Watershed encompasses three Common Resource Areas, CRA 57.1, 88.1 and 93A.1.

57.1 Northern Minnesota Till Moraine: Rolling glacial moraine and associated outwash with short, choppy and complex slopes. Soils are generally loamy with some clayey and sandy soils included. Organic soils occur in depressions. Land use is cropland, pasture timber and recreation. Numerous lakes occur in this region. Main crops are small grain, soybeans and forage crops. Resource concerns include improved drainage for crop production, grazing management of forest and grassland, water and wind erosion and water quality impacts.

88.1 Northern Minnesota Glacial Lake Basins: Nearly level to gently sloping areas formed in lake washed till, lacustrine and organic soil material. Generally the soils are silty, clayey and loamy with small amounts of sandy and gravelly soils on beach ridges. Timber land is the main use. Scattered cropland and grazing land for beef and dairy are present. Cropland is used mostly for small grain, silage and hay. Resource concerns include management of excessive wetness, short growing season, pasture management, and water quality.

93A.1 Superior Upland Bedrock and Till Complex: Gently sloping to very steep soils that generally formed in loamy, dense glacial till. Bedrock control is common and outcrops in many places, especially in the Boundary Water area. Bogs are common, both dysic and euic in reaction. Deciduous and coniferous forestland is the main land use. Small areas of



Only the major CRA units are described above.

 For further information, go to:

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

Soils / Geology ¹⁰

Soil distribution in the Little Fork watershed varies regionally and is most easily summarized according to ecological classification system subsection descriptions.

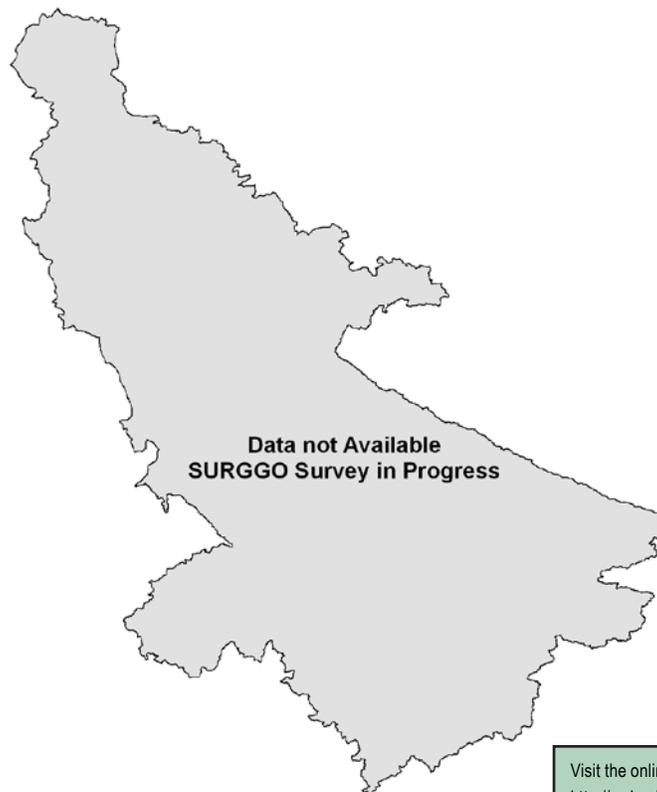
Littlefork / Vermillion Uplands: Soils in this subsection are primarily moderately well to poorly drained mineral soils formed from clayey lake-laid sediments or loamy to clayey glacial till. Organic soils are common, but do not dominate the landscape (as they do to the west in the Agassiz Lowlands). Peat depths vary from shallow to deep (1 to 15 feet thick). Soils are classified primarily as Aqualfs (wet forested soils), Aquentis (wet undeveloped soils), Boralfs (well to moderately well drained forested soils), and Hemists (moderately decomposed peat) (Anderson and Grigal 1984)

Agassiz Lowlands: Soils in this subsection are predominantly organic (Department of Soil Science, University of Minnesota 1980c, 1981b). There are a greater percentage of organic soils in the center of the lake basin, with increased amounts of poorly drained mineral soils near the edges. About 75 percent of the soils are peats in this portion of the basin. Peat depths can exceed 15 feet. Soils are classified primarily as Hemists, Aqualfs, and Aquentis (Anderson and Grigal 1984). Hemists occupy the center of the lake basin, whereas Aqualfs and Aquentis are along the margins of the basin.

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 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.

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.



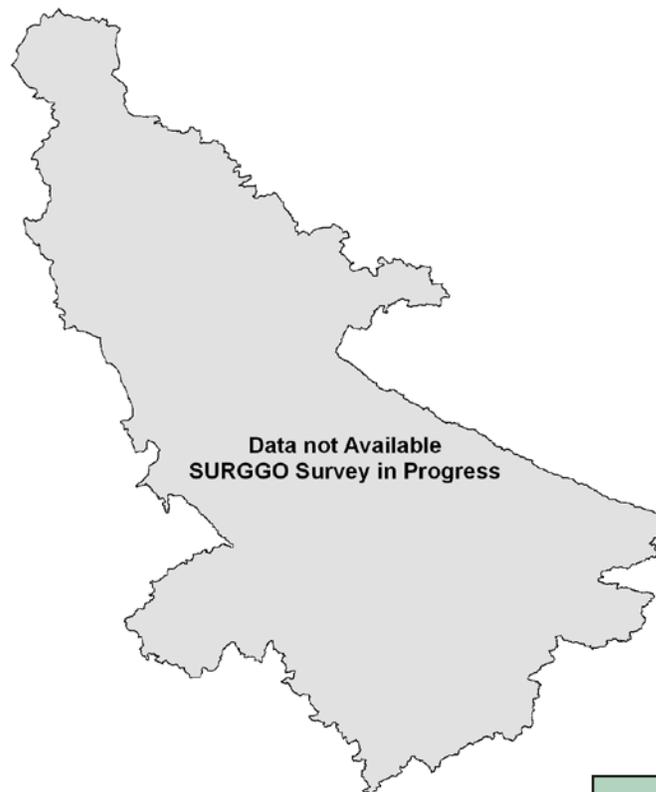
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Highly Erodible Land (HEL)

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 Etof 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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* SSURGO Data will be included upon completion and certification of Soil Survey Digitizing of all counties within the watershed

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: Little Fork				Watershed Number: 09030005						
PRS Performance Measures	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	TOTAL
Total Conservation Systems Planned (acres)	120	160	0	400	28	N/A	1,040	2,230	302	4,280
Total Conservation Systems Applied (acres)	14	125	0	18	18	N/A	40	124	1,709	2,048
Conservation Practices										
Total Waste Management (313) (numbers)	0	0	0	0	0	0	0	0	0	0
Riparian Forest Buffers (391) (acres)	0	0	0	3	28	28	0	7	0	66
Erosion Control Total Soil Saved (tons/year)	0	0	0	0	28	N/A	N/A	N/A	N/A	28
Total Nutrient Management (590) (Acres)	0	0	0	0	0	0	0	0	0	0
Pest Management Systems Applied (595A) (Acres)	0	0	0	0	0	0	0	0	0	0
Prescribed Grazing 528a (acres)	0	0	0	0	0	0	0	0	0	0
Tree & Shrub Establishment (612) (acres)	0	23	14	3	147	6	8	12	39	252
Residue Management (329A-C) (acres)	0	0	0	0	0	0	0	0	0	0
Total Wildlife Habitat (644 - 645) (acres)	87	225	75	179	460	93	179	48	83	1,429
Total Wetlands Created, Restored, or Enhanced (acres)	0	0	0	0	0	0	0	1	0	1
Acres enrolled in Farmbill Programs										
Conservation Reserve Program	0	0	0	0	0	N/A	0	40	0	40
Wetlands Reserve Program	0	0	0	0	0	N/A	0	0	0	0
Environmental Quality Incentives Program	0	0	0	0	0	N/A	40	18	961	1,019
Wildlife Habitat Incentive Program	14	125	12	18	0	N/A	0	0	0	169
Farmland Protection Program	0	0	0	0	0	N/A	0	0	0	0

THREATENED AND ENDANGERED SPECIES ¹⁴

NRCS assists in the conservation of threatened and endangered species and avoids or prevents activities detrimental to such species. NRCS' concern for these species includes the species listed by the Secretary of the Interior (as published in the Federal Register) and species designated by state agencies. The following is a list of threatened, endangered, candidate species and species of special concern that occur in the basin.



Scientific Name	Common Name	Type
<i>Acipenser fulvescens</i>	Lake Sturgeon	Zoological
<i>Botrychium lanceolatum</i>	Triangle Moonwort	Botanical
<i>Botrychium simplex</i>	Least Moonwort	Botanical
<i>Caltha natans</i>	Floating Marsh-marigold	Botanical
<i>Carex exilis</i>	Coastal Sedge	Botanical
<i>Carex sterilis</i>	Sterile Sedge	Botanical
<i>Cicindela denikei</i>	Laurentian Tiger Beetle	Zoological
<i>Cladium mariscoides</i>	Twig-rush	Botanical
<i>Drosera anglica</i>	English Sundew	Botanical
<i>Eleocharis rostellata</i>	Beaked Spike-rush	Botanical
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Zoological
<i>Ichthyomyzon fossor</i>	Northern Brook Lamprey	Zoological
<i>Juncus stygius</i> var. <i>americanus</i>	Bog Rush	Botanical
<i>Lasmigona compressa</i>	Creek Heelsplitter	Zoological
<i>Ligumia recta</i>	Black Sandshell	Zoological
<i>Littorella uniflora</i>	American Shore-plantain	Botanical
<i>Platanthera clavellata</i>	Club-spur Orchid	Botanical
<i>Polemonium occidentale</i> ssp. <i>lacustre</i>	Western Jacob's Ladder	Botanical
<i>Potamogeton vaseyi</i>	Vasey's Pondweed	Botanical
<i>Ranunculus lapponicus</i>	Lapland Buttercup	Botanical
<i>Sparganium glomeratum</i>	Clustered Bur-reed	Botanical
<i>Tsuga canadensis</i>	Eastern Hemlock	Botanical
<i>Utricularia resupinata</i>	Lavendar Bladderwort	Botanical

RESOURCE CONCERNS

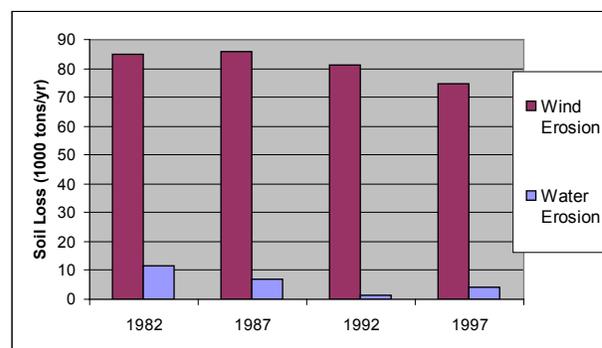
County Soil and Water Conservation Districts have identified the following resource concerns as top priorities for conservation and cost sharing efforts:

- Soil Quality, Excessive Erosion.** Soil erosion from exposed surface areas, logging sites, streambank and lakeshore areas, and roadside erosion are considerable conservation issues in the watershed.
- Management of Excessive Wetness:** The nature of much of the basin's soils limits productivity and viability of land for agricultural and some silvicultural uses. Efforts such as ditching, species selection, critical planting, and wetland mitigation aid in combating the wetness common to the area.
- Surface Water Quality:** Enhancement of surface waters. Excessive amounts of sediments, nutrients, and bacteria degrade the water quality causing a fish community with depressed populations and limited diversity. Reduction of priority pollutants and sediments in surface waters will enhance economic development opportunities by preserving the environmental features that promote and attract tourists and fishermen to the area and improve the quality of water supply in the region.
- Wetland Management.** Physical changes have taken place, wildlife and plant species composition have been altered, greatly changing the function and value of the areas plentiful wetlands. Establishing high priority wetland areas and enforcing future wetlands legislation provides opportunities to enhance the wetland resources of the watershed.
- Short Growing Season:** Given the short growing season, timely planting, management of moisture, and appropriate seed selection is crucial for a successful crop. Planting delay and short-time concentrated precipitation in the growth season are the main causes of yield reduction.
- Woodland Management.** Management opportunities include planting trees or shrubs, timber stand improvement, timber sales, enhancing wildlife habitat, prescribed burning, control of invasive species, and other conservation measures.



NRI Erosion Estimates ^{/13}

- NRI Estimates for sheet and rill erosion by water on the crop and pastureland decreased by approximately 64% (7,400 tons of soil) between 1982 and 1997. Soil loss by wind erosion declined by approximately 12% (9,800 tons).



Socioeconomic and Agricultural Data

The Little Fork subbasin has an estimated population of just over 8,290 people. Median household income throughout the district is slightly less than \$36,200 yearly, roughly 78% of the national average. Unemployment in the basin is estimated at 5.8%, and approximately 11% of the watershed residents live below the national poverty level.



There are 227 Farms in the Little Fork Watershed. Approximately 62 percent of the operations are less than 180 acres in size, 37 percent are 180 to 1,000 acres in size, and the remaining farms are greater than 1,000 acres. Average farm size is 36 acres. Of the 217 operators in the basin, 49 percent are full-time producers not reliant on off farm income.

(MN) HUC# 9030005		Total Acres:	1,179,580
Population Data*	Watershed Population	8,293	
	Unemployment Rate	5.8%	
	Median Household Income	39,186	
	% below poverty level	11%	
	Median Value of Home	72,467	
Farm Data	# of Farms	227	
	# of Operators	217	Percent
	# of Full Time Operators	105	49%
	# of Part Time Operators	111	51%
	Total Cropland Acres	25,392	2.2%
Farm Size	1 to 49 Acres	89	23%
	50 to 179 Acres	153	39%
	180 to 499 Acres	116	29%
	500 to 999 Acres	30	8%
	1,000 Acres or more	7	2%
	Average Farm Size	36	
Livestock & Poultry	Cattle - Beef	1,816	26%
	Cattle - Dairy	242	3%
	Chicken	884	13%
	Swine	101	1%
	Turkey	27	0%
	Other	3,851	56%
	Animal Count Total:	6,920	
	Total Permitted AFOs:	39	
Chemicals (Acres Applied)	Insecticides	799	
	Herbicides	7,209	
	Wormicides	0	
	Fruiticides	91	
	Total Acres Treated	8,098	
	% State Chemical Totals	0.1%	

* 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

- Long-term water quality monitoring in the Greater Rainy River Watershed. The Northeast Region Sustainable Development Partnership joined with the Minnesota DNR and seven partners in both Canada and the United States to support water quality monitoring and environmental education involving an interagency, inter-scholastic and international cooperation. Koochiching County Environmental Services is the project coordinator. The sponsoring entity was the Rainy / Rapid River Board
- Tomorrow's Habitat for the Wild and Rare: Little Fork Vermilion Uplands; An Action Plan for Minnesota Wildlife , Minnesota DNR. Study outlining 67 Species in Greatest Conservation Need (SGCN). 18 percent of Minnesota's SGCN are said to occur within the Little-Fork Vermillion Uplands. Study provides suggestions on priority conservation actions to maintain, enhance, and protect the key habitats for the SGCN's occurring within the area.
- Itasca Forest Legacy Fund; Blandin Foundation and the Nature Conservancy. Established fund designed to purchase conservation easements from willing sellers on up to 75,000 acres of strategically selected parcels of private and industrial forestland in the Itasca County area. This venture will enroll private forestland in Itasca County in the Federal Forest Legacy Program, a joint operation of the USDA Forest Service and the Minnesota DNR.
- Minntac Water Inventory Reduction EIS, Minntac, MPCA. The objective is to determine how potential changes in surface water hydrology and water quality may affect aquatic organisms and communities in St. Louis County, Minnesota impacted by discharge from the Minntac tailings basin. Considers the impacts on state and federal threatened and endangered aquatic invertebrate species, and other sensitive invertebrate species of concern within the Dark River, Sturgeon River, and Little Fork River drainage, and the Sandy River and Pike River drainage into and including Lake Vermilion.
- Little Fork River Plan (Implementation), MPCA and International Joint Commission. Goals may include delineation of specific stream segments to be restored or protected, loading reductions to be achieved, type and amount of habitat to be restored, identification of water management issues and problems, conservation district goals, priority issues and



Conservation Districts, Organizations & Partners

- | | |
|---|---|
| <ul style="list-style-type: none"> • Big Fork River Board
 57565 County Rd. 29, Northome, MN 56661
 Phone - 218-659-4511 | <ul style="list-style-type: none"> • Itasca County SWCD
 1889 East Highway 2, Grand Rapids, MN 55744
 Phone: 218-326-0017 |
| <ul style="list-style-type: none"> • Bois Forte Department of Natural Resources
 5344 Lakeshore Drive Nett Lake, MN 55772
 Phone: 218-757-3261 | <ul style="list-style-type: none"> • MPCA Regional Office - Duluth
 525 Lake Avenue S. # 400 Duluth, MN 55802
 Phone 218-723-4660 or 800-657-3864 |
| <ul style="list-style-type: none"> • Koochiching County SWCD
 715 4th St International Falls, MN 56649
 Phone 218-283-1174 | <ul style="list-style-type: none"> • North St. Louis SWCD
 307 1st St. S. Suite 114 Virginia MN 55792
 Phone 218-742-9504 |
| <ul style="list-style-type: none"> • Koochiching WP, Rainy River Monitoring
 715 4th Street, International Falls, MN, 56649
 Phone - 218-283-1155 | <ul style="list-style-type: none"> • Rainy River First Nations
 Box 450 Emo, ON P0W 1E0
 Phone 807-482-2479 Fax: (807) 482-2603 |
| <ul style="list-style-type: none"> • Laurentian Resource Conservation and Development Council
 4850 Miller Trunk Hwy, Suite 2A Duluth, MN 55811
 Phone (218) 720-5225 | <ul style="list-style-type: none"> • Rainy River Basin Water Resources Center
 Rainy River Community College
 1501 Highway 71 International Falls, MN 56649
 Phone 218-285-2218 |

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/>. 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>.