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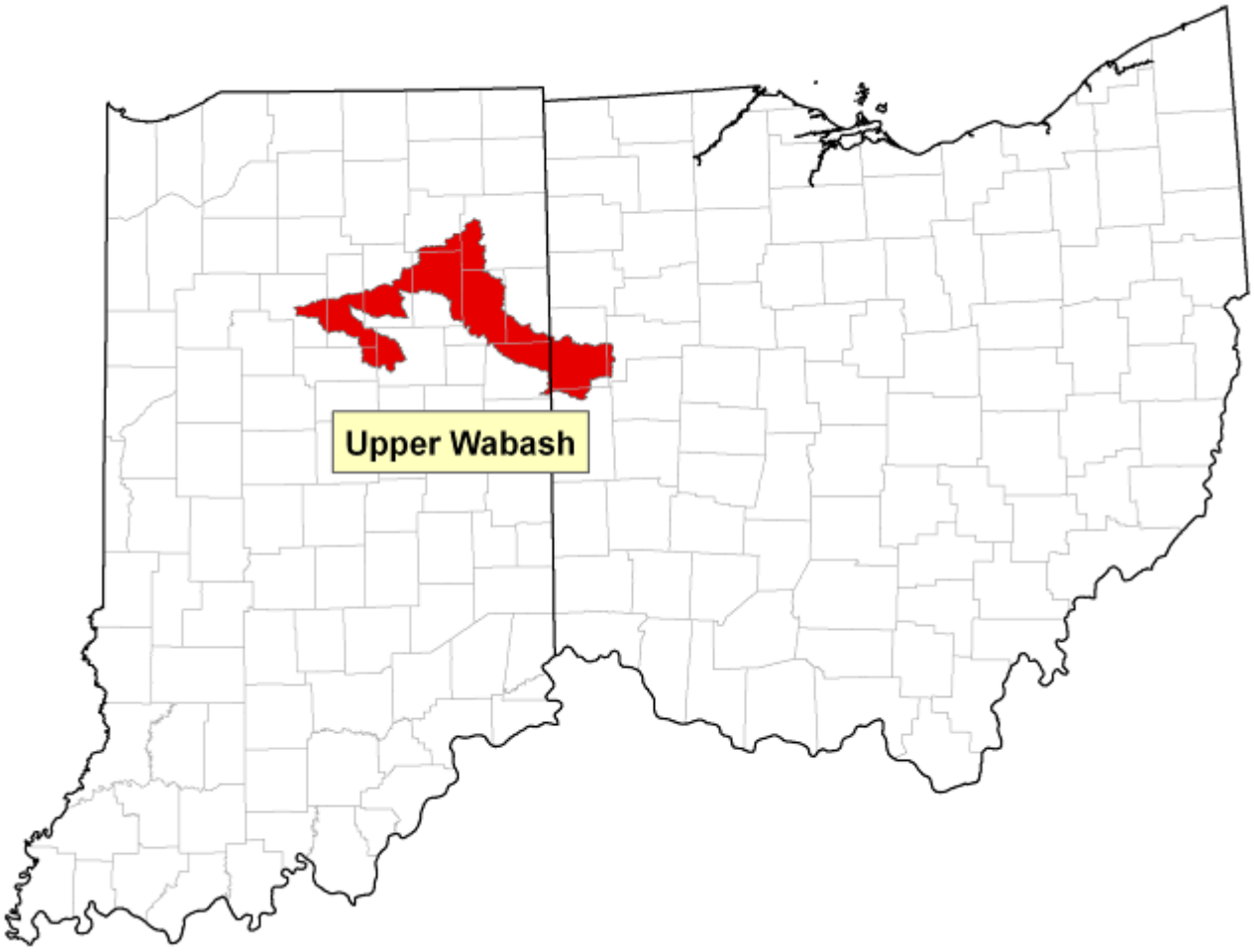
Rapid Watershed Assessment
Upper Wabash Watershed

Rapid Watershed Assessments provide initial estimates of where conservation investments would best address the concerns of land owners, conservation districts, and community organizations and stakeholders. These assessments help land owners and local leaders set priorities and determine the best actions to achieve their goals.



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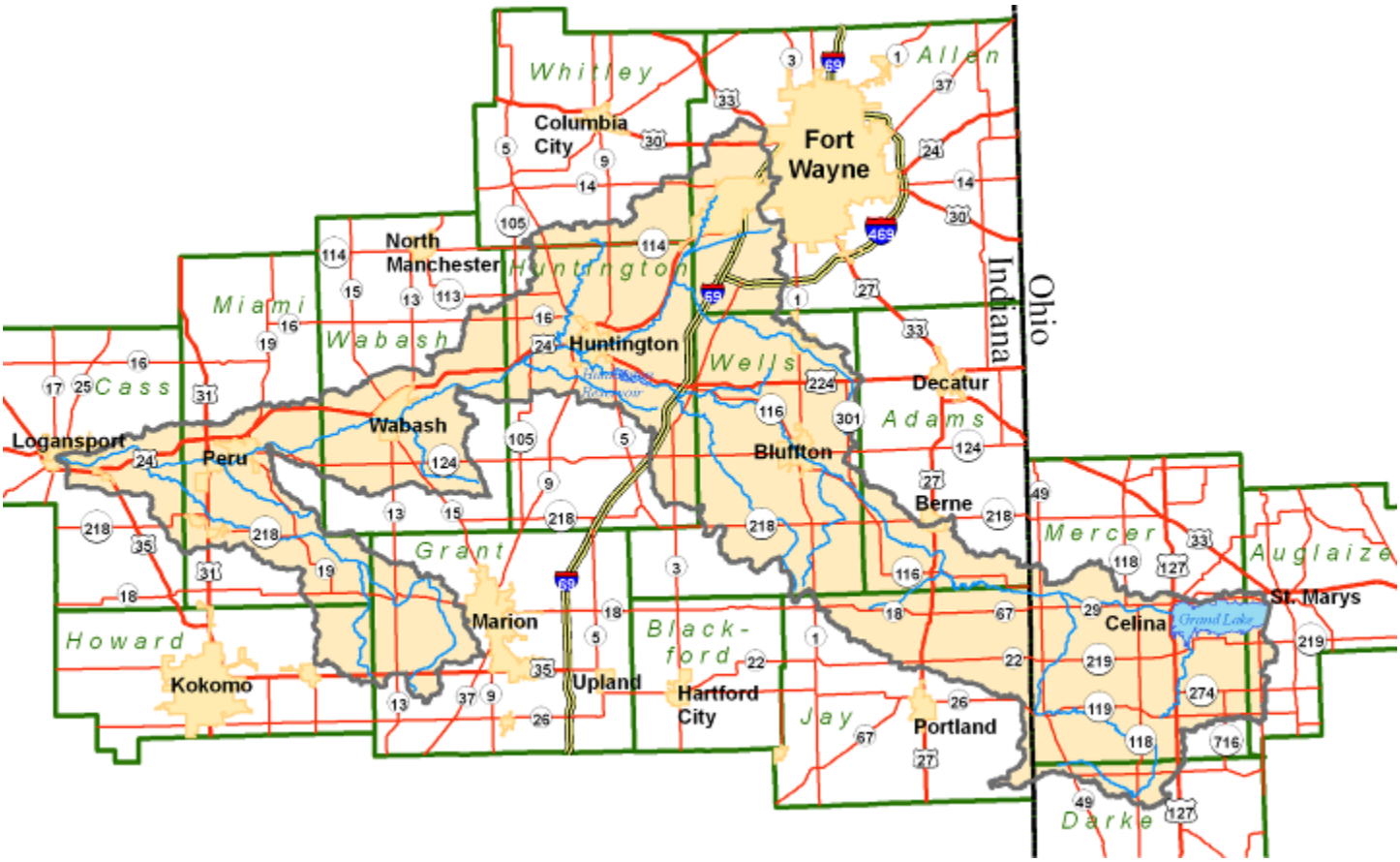
Upper Wabash Watershed



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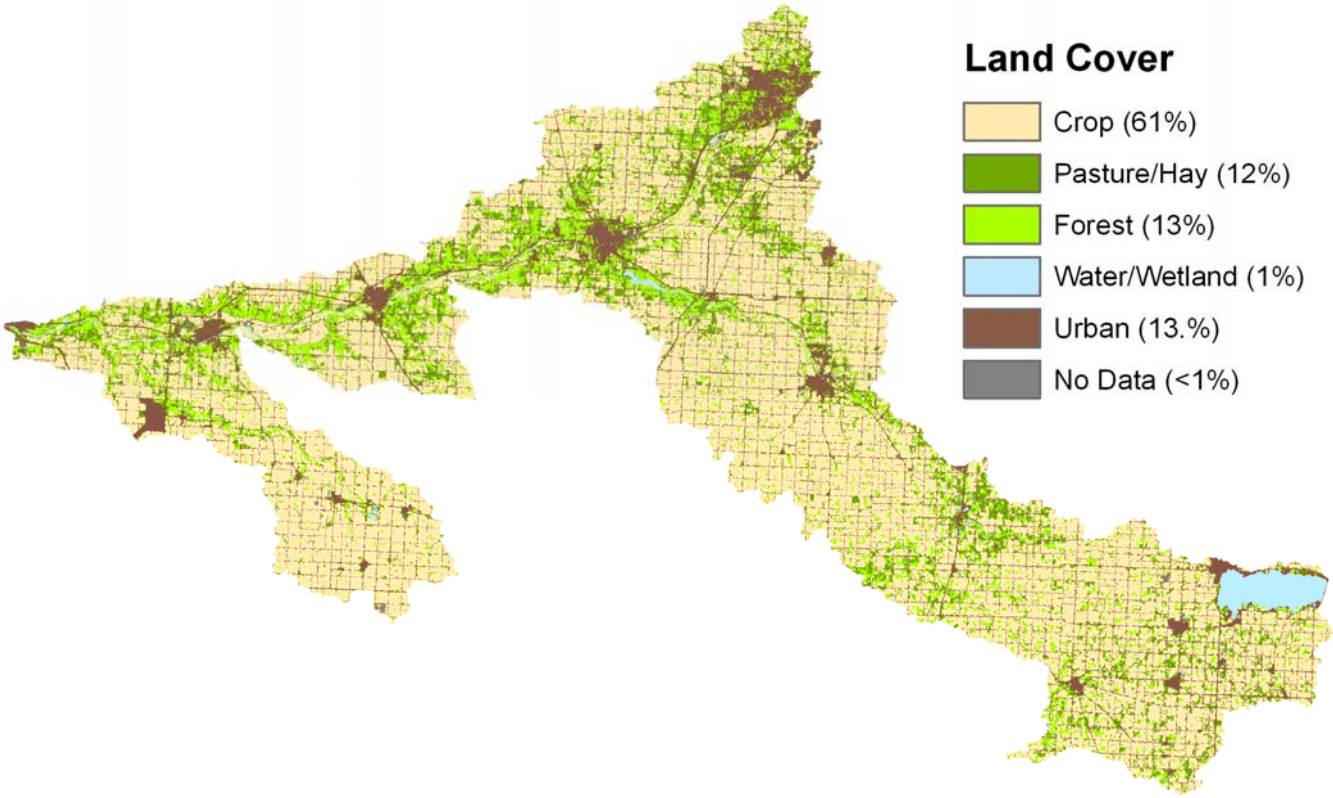
Introduction

The Upper Wabash watershed - hydrologic unit code (HUC) 05120101 begins in northwestern Ohio and continues west into northeastern Indiana. The watershed drainage area is 1,047,990 acres within ten Indiana and three Ohio counties.



The Ohio portion of the Upper Wabash Watershed is a highly intensive livestock region, portions of which drain into Grand Lake St. Marys. Grand Lake is Ohio's largest inland lake (12,740 acres) and is in a super eutrophic condition due to nutrient and bacterial runoff. The city of Celina, OH gets its drinking water from the lake and thousands of people come to the area for recreation, making water quality improvements important to protecting human health.

The Indiana portion of the Upper Wabash watershed represents the headwaters of Indiana's most important river. The river, although dammed in its far upper reaches, is one of largest free flowing rivers remaining in the Midwest. Several regional and national river assessments identify the Wabash River as one of the most diverse aquatic systems in the nation.

The majority of the soils in the watershed have low to medium erosion potential, yet nutrients and sedimentation are still significant resource concerns.

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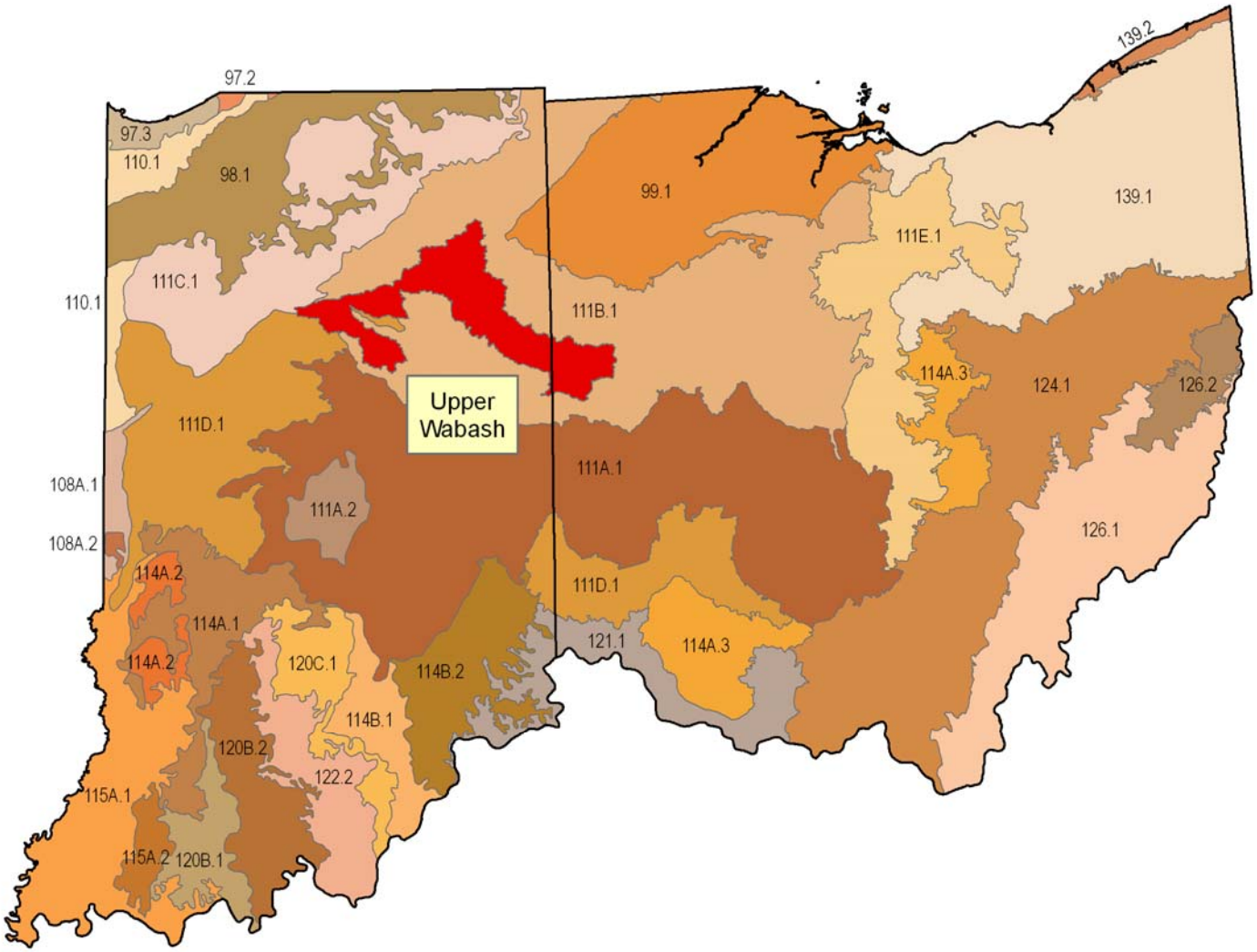
Common Resource Area

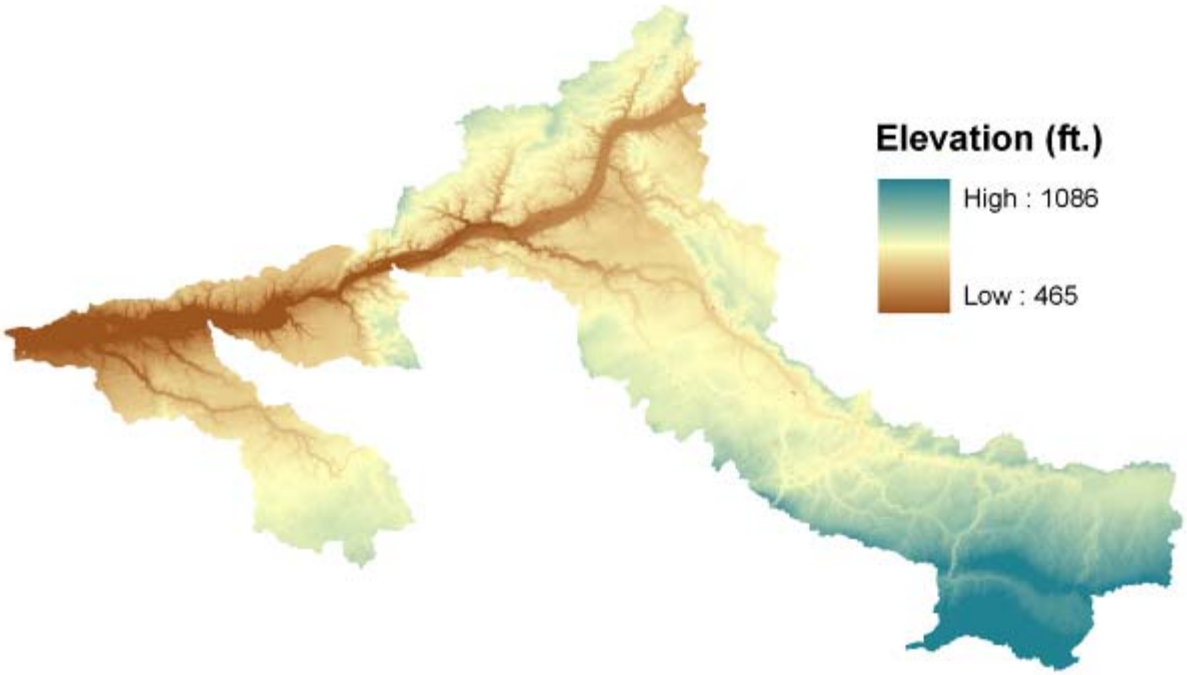
The common resource areas for the Upper Wabash are 111B.1 and 111D.1 in the watershed:

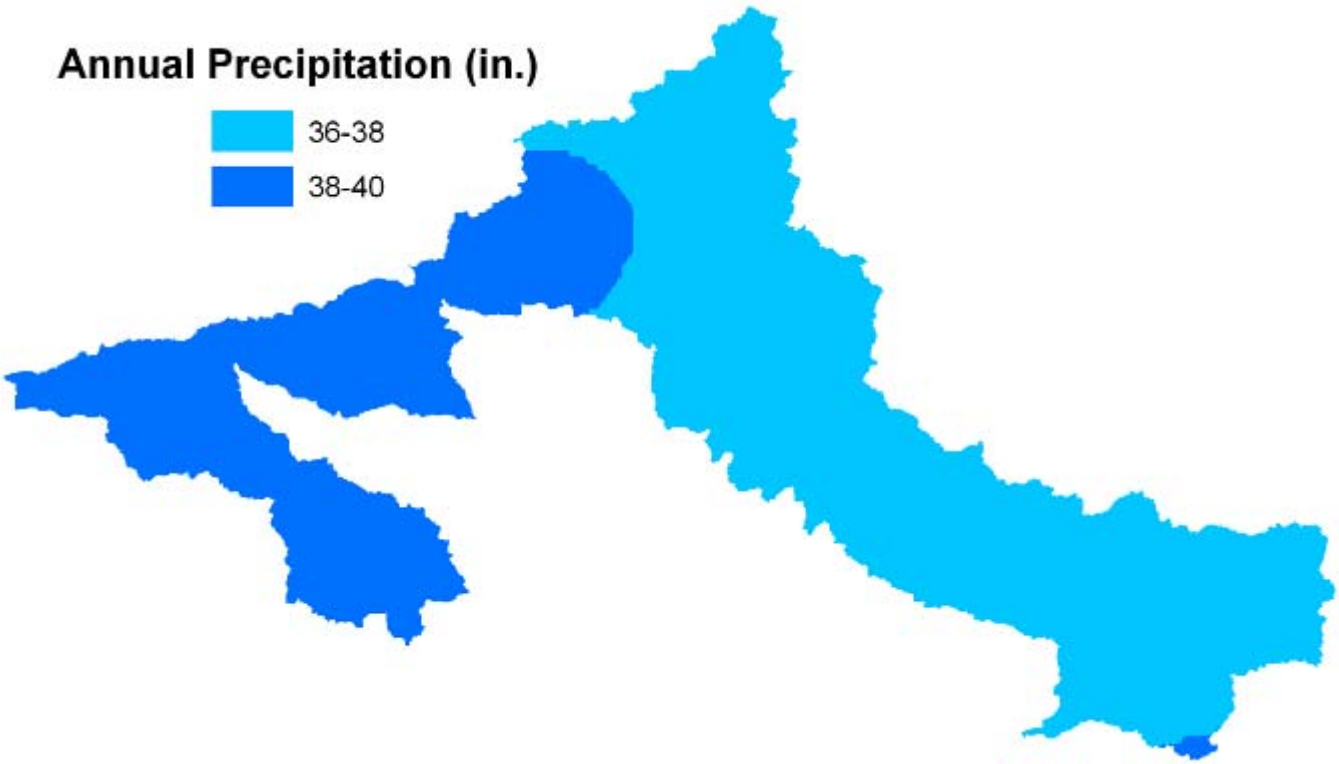
The Indiana and Ohio Till Plain, Northeastern Part (111B.1). Broad, level clayey till plain with some end moraines, lake basins, and sand and gravel outwash. Extensive corn, soybean, wheat, and livestock farming on artificially drained soils with scattered woodlots. Soils are well drained to very poorly drained, formed in Wisconsin Age glacial drift derived mostly from limestone and dolomite.

Indiana and Ohio Till Plain, Western Part (111D.1). Relatively flat-lying ground moraine with moderate relief, cut by steep-valleyed large streams. Extensive corn, soybean, and livestock farming with scattered woodlands and residential, commercial, and industrial development. Soils are well drained to very poorly drained, formed in thin to moderately thick loess and Wisconsin Age glacial drift derived mostly from limestone and dolomite.



Physical Description





Upper Wabash Watershed
(HUC – 05120101)
Indiana

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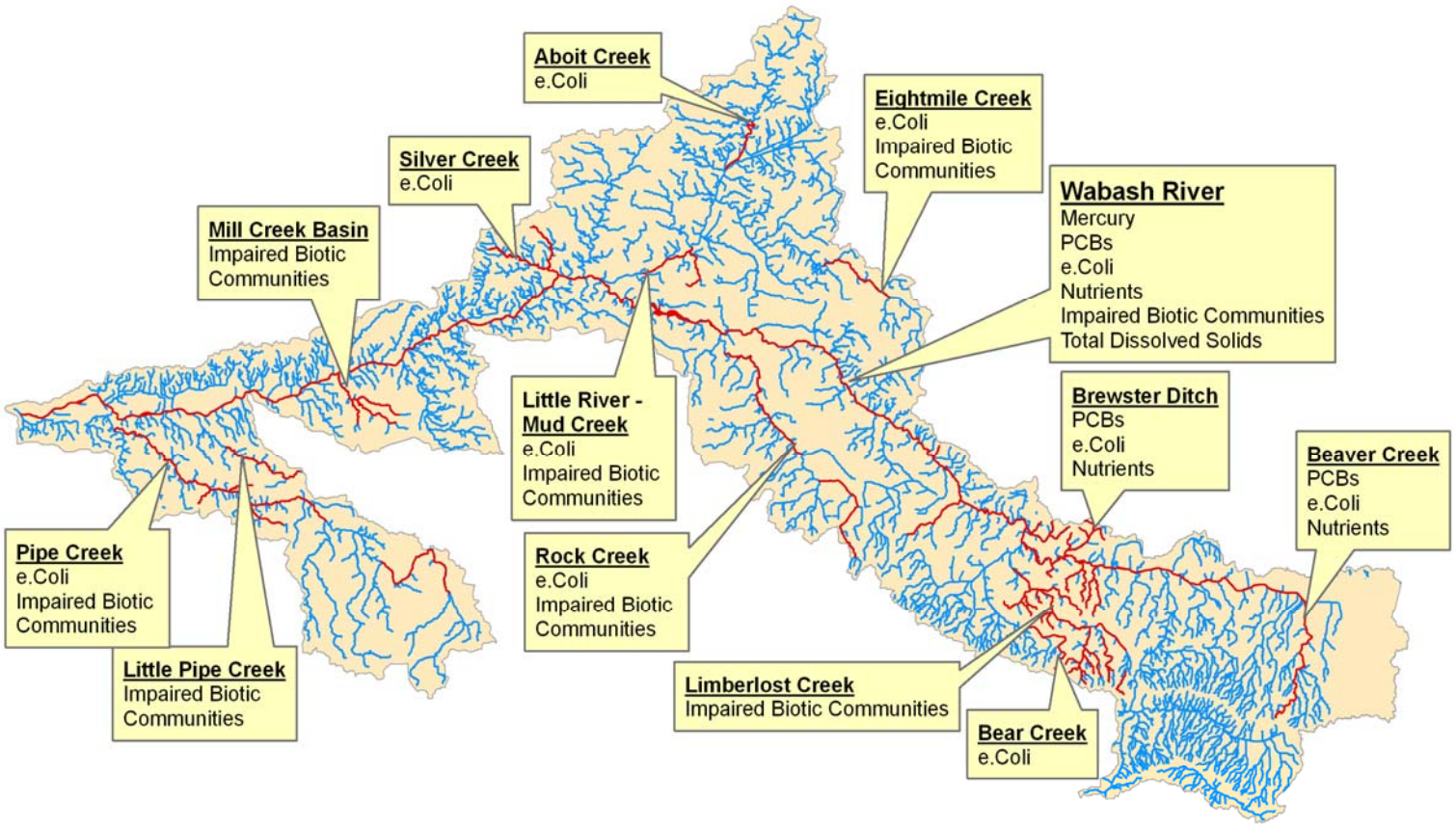
Assessment of waters

Section 303(d) of the Clean Water Act requires states to identify waters that do not meet, or are not expected to meet, applicable water quality standards. The Clean Water Act Section 303(d) lists for Indiana and Ohio provide a basis for understanding the current status of water quality in the Upper Wabash Watershed.

WATERBODY SEGMENT NAME	CAUSE OF IMPAIRMENT
WABASH RIVER	E. COLI
LIMBERLOST CREEK AND TRIBUTARIES ABOVE TRIBUTARY 2	IMPAIRED BIOTIC COMMUNITIES
WABASH RIVER	IMPAIRED BIOTIC COMMUNITIES, TOTAL DISSOLVED SOLIDS, CHLORIDES
WABASH RIVER - THREEMILE CREEK	E. COLI
WABASH RIVER	E. COLI
WABASH RIVER AND TRIBUTARY	E. COLI
WABASH RIVER MAINSTEM	E. COLI
EIGHTMILE CREEK - UPPER MIDDLE	IMPAIRED BIOTIC COMMUNITIES
LITTLE RIVER - MUD CREEK	E. COLI
MUD CREEK	IMPAIRED BIOTIC COMMUNITIES
SILVER CREEK BASIN	COPPER
WABASH RIVER	COPPER, E. COLI
MILL CREEK BASIN	IMPAIRED BIOTIC COMMUNITIES
WABASH RIVER	E. COLI
PIPE CREEK - UPPER	IMPAIRED BIOTIC COMMUNITIES
PIPE CREEK	E. COLI
BEAVER CREEK	NUTRIENTS, BACTERIA



Upper Wabash Watershed
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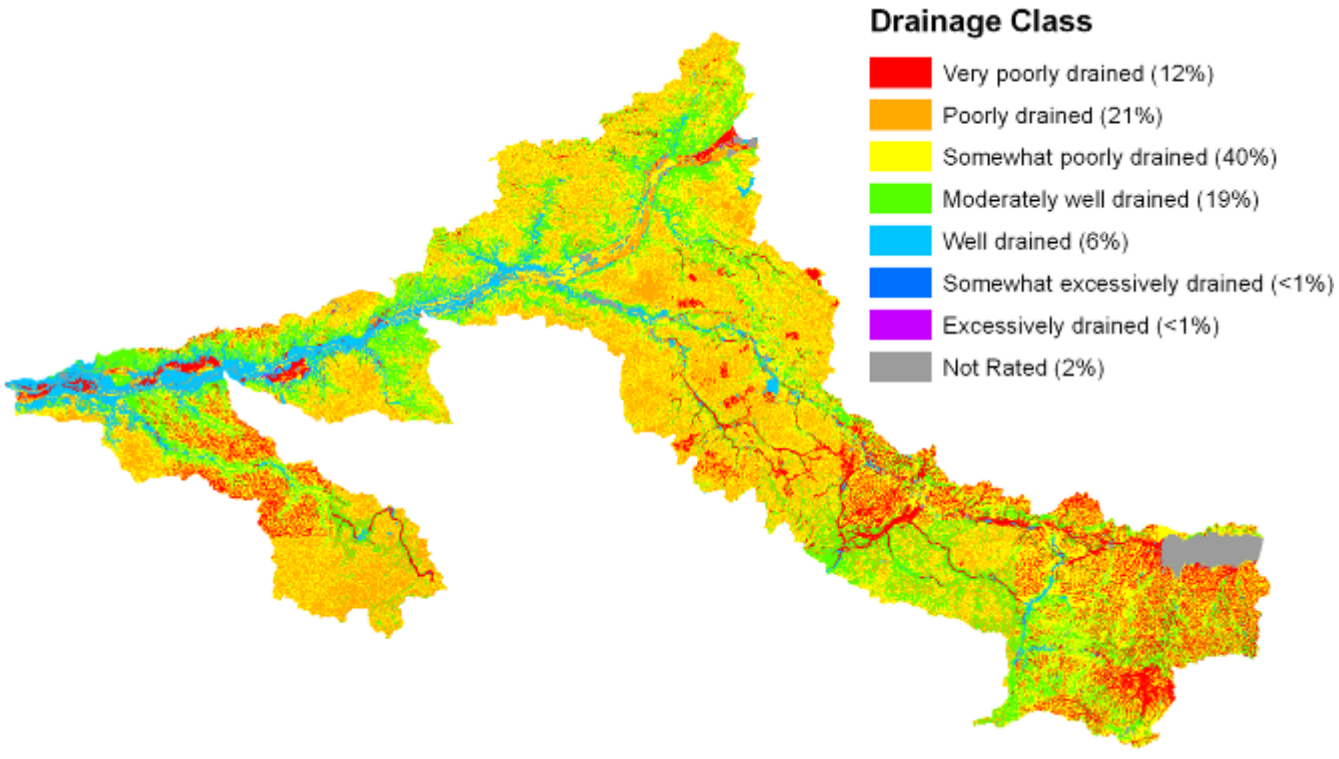
Soils (Major Land Resource Areas 111B - Indiana and Ohio Till Plain, Northeastern Part and 111C - Indiana and Ohio Till Plain, Northwestern Part)

The dominant soil orders in these Major Land Resource Areas (MLRA) are Alfisols, Inceptisols, and Mollisols. The soils in the area have a mesic soil temperature regime, an aquic or udic soil moisture regime, and mixed or illitic mineralogy. They are very deep, generally are very poorly drained to somewhat poorly drained, and are loamy or clayey. The dominant kinds of parent material are clayey till and lacustrine sediments. Others include outwash, alluvium, loess, and organic deposits. Hapludalfs (Glynwood and Morley series), Epiaqualfs (Blount, Nappanee, and Pandora series), Endoaqualfs (Wetzel series), and Argiaquolls (Pewamo series) are on till plains. Endoaquolls (Milford and Montgomery series) and Epiaqualfs (Del Rey series) are on lake plains. Haplosaprists (Houghton and Linwood series), Humaquepts (Roundhead and Wallkill series), and Endoaquepts (Wunabuna series) are in deep depressions or potholes. Hapludalfs (Belmore, Eldean, and Fox series), Endoaqualfs (Sleeth series), and Argiaquolls (Millgrove, Rensselaer, and Westland series) are on terraces and outwash plains. Eutrudepts (Genesee series), Endoaquepts (Shoals series), and Endoaquolls (Saranac and Sloan series) are on flood plains.

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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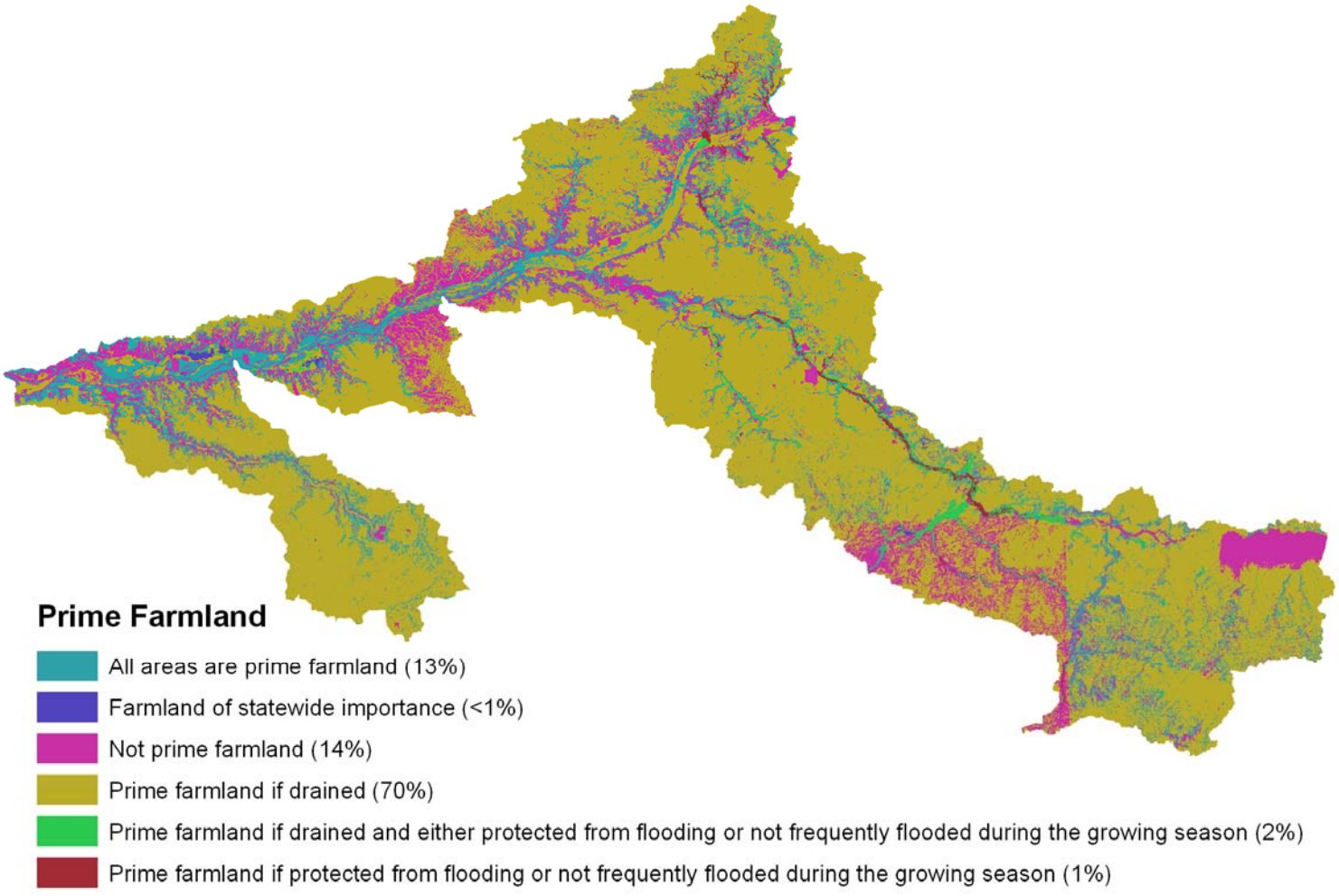
Farmland Classification

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.

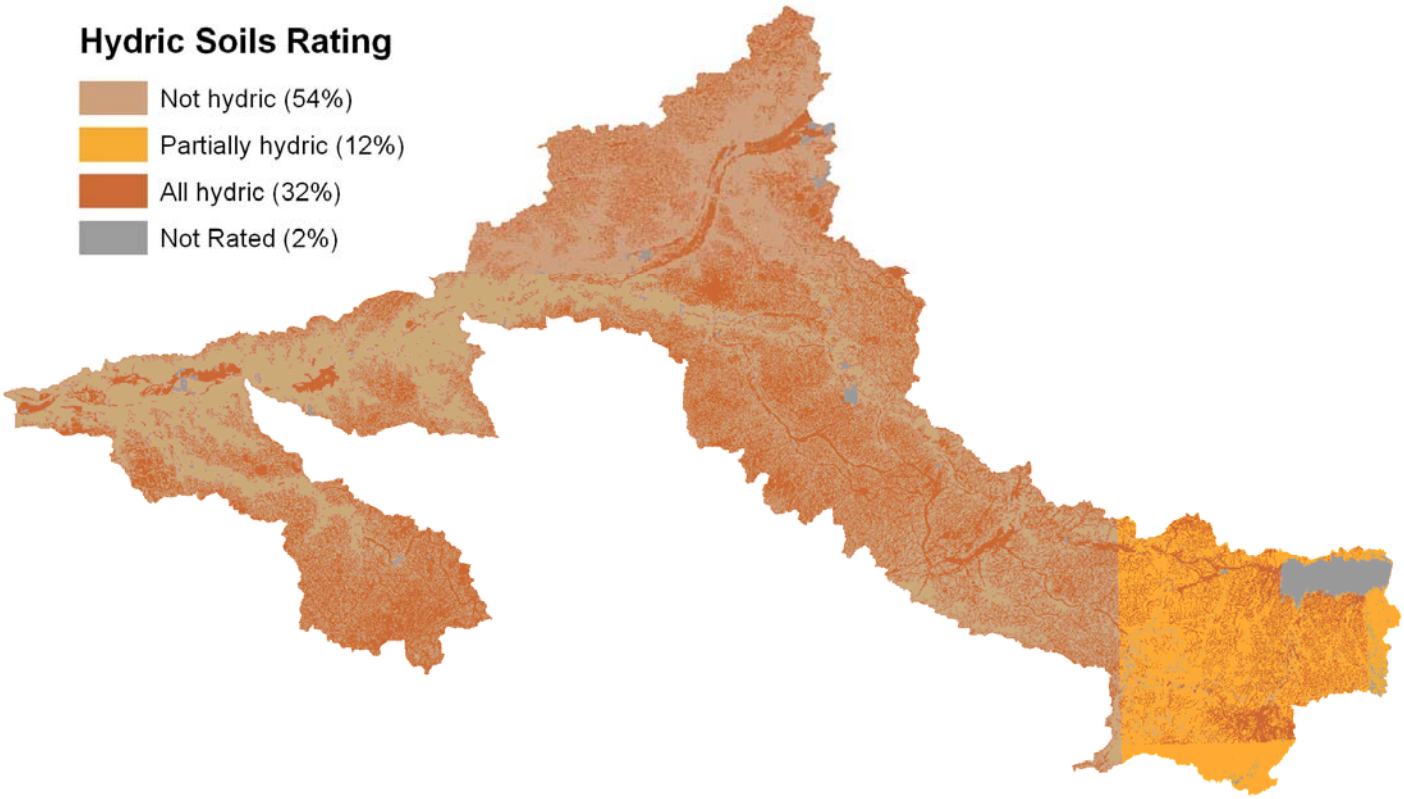


Hydric Soils

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 non-hydric soils in the higher positions on the landform, and map units dominantly made up of non–hydric soils may have inclusions of hydric soils in the lower positions on the landform.

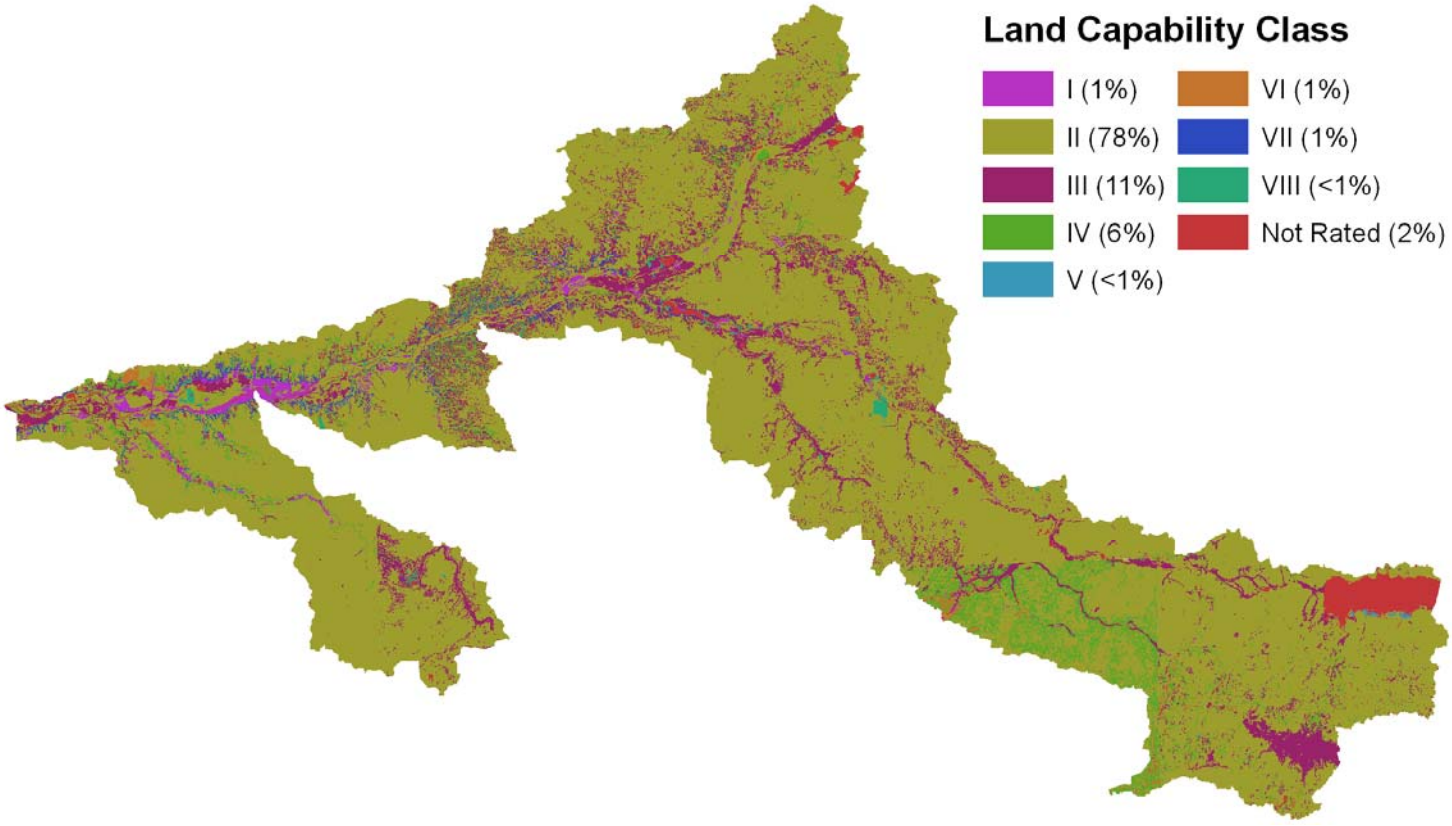
Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register 1994). These soils, under natural conditions, 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. These visible properties are indicators of hydric soils. The indicators used to make on site determinations of hydirc soils are specified in “Field Indicators of Hydric Soils in the United States” (Hurt and others, 2002).



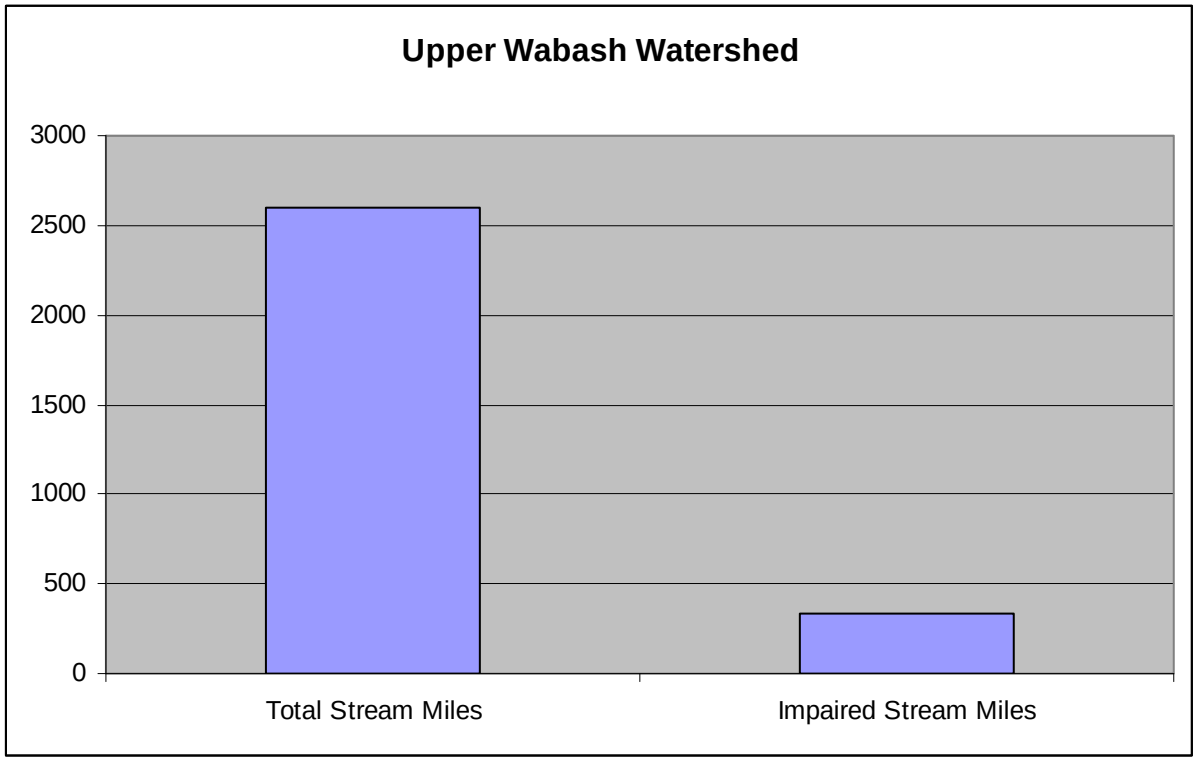
Land Capability Classification

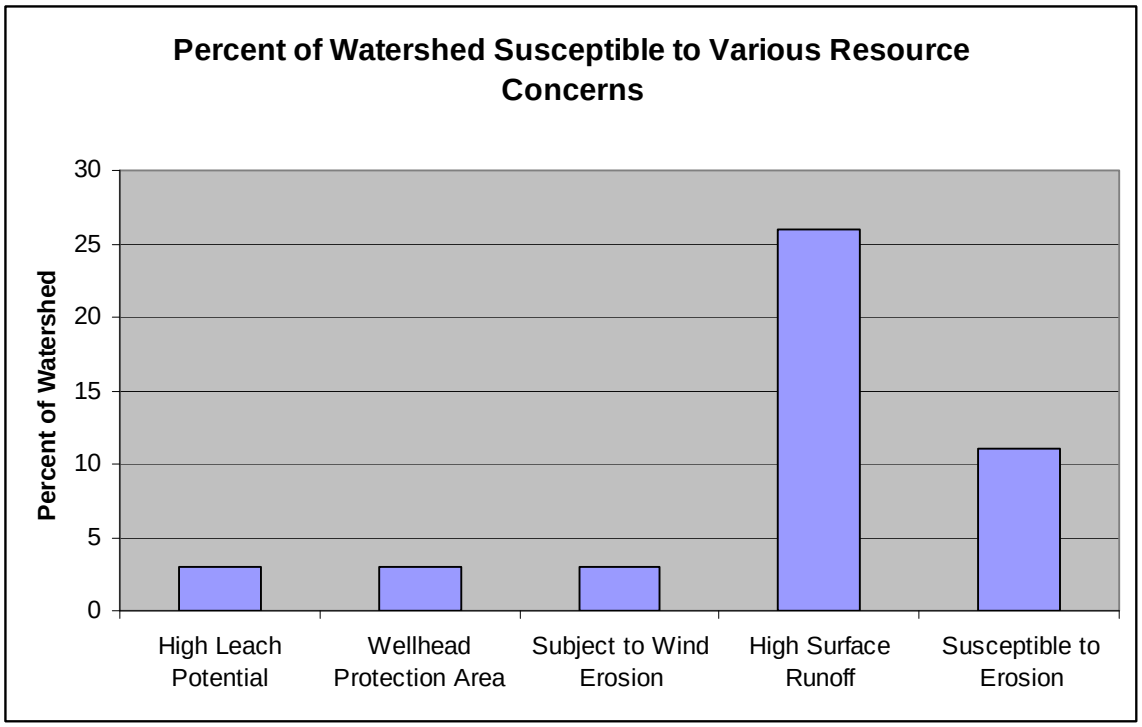
Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond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



Resource Concerns

- **Surface Water Quality** – There is approximately 13 percent or 333 miles of the 2593 total miles of the streams within the watershed that have identified impairments. 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** - The watershed has in excess of 29,000 acres of soils with high leaching index (> 10) which allows contaminants on the land surface to be carried into the ground water from infiltrating water. Approximately 3% of the watershed is within an identified wellhead protection area.

- **Soil Quality** – The watershed has over 95,000 acres subject to soil erosion by water, and over 224,000 with a surface runoff class of high (which provides a measure of the risk of soil solution movement from the surface of a management unit). Approximately 3% of the watershed is susceptible to wind erosion.

Existing Conservation (data from NRCS Performance Results System)

The producers within the watershed have implemented a variety of conservation practices over the past five years. Since 2002 through 2007 landowners have implemented over 20,480 acres of No-Till, approximately 278,000 feet of upland buffers, and over 2,900 acres of aquatic buffers. Wildlife habitat has been improved or established on more than 12,370 acres within the watershed and over 1,470 acres of forestry practices have been applied.

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WABASH RIVER WATERSHED AGRICULTURAL DATA AND NRCS FINANCIAL ASSISTANCE

	Watershed County Data[1]														
USDA Census of Agriculture - 2007	**Adams, IN**	**Allen, IN**	**Auglaize, OH**	**Cass, IN**	**Darke, OH**	**Grant, IN**	**Howard, IN**	**Huntington, IN**	**Jay, IN**	**Mercer, OH**	**Miami,IN**	**Wabash, IN**	**Wells, IN**	**Whitley, IN**	**Watershed Data[1]**
Farms (number)	308	252	48	110	80	87	54	466	295	707	284	298	555	87	3,630
Land in farms (acres)	42703	38883	9598	28981	15770	33555	14605	121035	66070	159113	74060	70241	154125	14668	843,408
Average size of farm (acres)	33	24	9	33	9	64	24	158	75	122	109	83	220	18	981
Harvested cropland (acres)	37172	32986	8140	25577	13840	31003	13052	107430	56810	140115	62078	59515	142112	11644	741,472
Market value of crop products sold ($1,000)	14456	13718	2964	12543	5773	11617	6024	45019	21449	51194	25394	25361	57064	5733	298,309
Market value of livestock, poultry & products ($1000)	22704	4262	3273	4147	15816	1540	2579	29407	38404	239414	17867	27599	31639	3369	442,018
Vegetables harvested for sale (farms)	12	4	0	2	1	2	1	2	3	8	2	5	13	1	56
Vegetables harvested for sale (acres)	29	118	0	98	30	142	n/a[2]	8	n/a[2]	56	1	21	30	4	537
National Agricultural Statistics Service															0
Wheat Winter - Harvested (acres) - 2008	3370	3320	1287	521	1175	1112	261	5776	5327	15747	3037	3220	10296	1017	55,464
Corn For Grain - Harvested (acres) - 2008	14742	11138	2660	13462	5297	12201	6084	39155	23551	48924	29162	25830	58291	6046	296,542
Soybeans - Harvested (acres) - 2008	19562	15637	3884	9246	6102	16899	6435	53261	29112	52237	31450	28420	81497	6709	360,448
Dry Hay - Harvested (acres) - 2007	2340	1561	356	660	576	481	234	2858	1776	7113	1706	1680	3010	578	24,927
NRCS Conservation Program Financial Assistance from 1996 and 2002 Farm Bills															
1996 Farm Bill (includes EQIP & WRP)[1]	$922,218	$5,278	$17,771	$14,199	$33,459	$0	$8,717	$602	$248,300	$493,410	$85,005	$8,922	$17,752	$0	$1,855,632
Environmental Quality Incentives Program ('02-'08)[1]	$119,297	$301,030	$116,532	$86,021	$87,827	$6,458	$47,760	$1,209,147	$28,012	$2,077,707	$358,078	$699,903	$607,272	$101,700	$5,846,744
Conservation Security Program	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Wetland Reserve Program ('02-'07)	$128,900	$1,949,440	$0[1]	$0	$54,162[1]	$0	$0	$0	$452,600	$0[1]	$0	$0	$0	$0	$2,585,102
Wildlife Habitat Incentives Program ('02-'08)[1]	$0	$11,272	$0	$2,286	$1,552	$0	$0	$39,151	$0	$3,907	$1,617	$15,317	$0	$3,861	$78,964
Farm and Ranch Lands Protection Program('02-'07)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Grassland Reserve Program ('03-'08)[1]	$0	$2,367	$0	$2,407	$0	$0	$0	$131,582	$0	$0	$1,304	$5,103	$0	$4,114	$146,876
Total 1996-2008 NRCS Administered Program Dollars	$1,170,415	$2,269,387	$134,303	$104,914	$177,000	$6,458	$56,476	$1,380,482	$728,912	$2,575,025	$446,003	$729,244	$625,024	$109,675	$10,513,318

[1] Prorated by county area in watershed

[2] Data not disclosed

All data is provided "as is." There are no warranties, expressed or implied, including the warranty of fitness for a particular purpose, accompanying this document. Use for general planning purposes only.

Data Sources:

Indiana Common Resource Area (CRA) Map delineations are defined as geographical areas 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 CRA.

National Agricultural Statistics - http://www.agcensus.usda.gov/

Major Land Resource Area Map Tool - Indiana NRCS Soils Page - http://www.in.nrcs.usda.gov/mlra11/soils.html

Indiana Hydrologic Units Indiana Geodata

Indiana Watershed Restoration Action Strategy Plan

Indiana Rapid Watershed Assessment (Electronic Data Sets – Web based application.

303d List – Indiana Department of Environmental Management and Ohio Environmental Protection Agency