Watershed Report

Middle Wabash-Busseron (05120111)

Land Use

	Total (Ac.)	Crops (Ac.)	% of Total	Forest (Ac.)	% of Total	Water/Wetland (Ac.)	% of Total	Pasture/Hay (Ac.)	% of Total	Urban (Ac.)	% of Total	No Data (Ac.)	% of Total
Clay	42,569	13,416	1.87	10,911	1.52	1,020	0.14	14,253	1.98	2,414	0.34	0	0.00
Greene	8,659	1,245	0.17	3,419	0.48	267	0.04	2,976	0.41	617	0.09	0	0.00
Knox	95,810	49,346	6.86	8,721	1.21	1,949	0.27	29,409	4.09	2,877	0.40	0	0.00
<u>Parke</u>	16,549	8,837	1.23	4,232	0.59	82	0.01	3,038	0.42	200	0.03	0	0.00
Sullivan	273,156	125,847	17.50	47,924	6.66	8,443	1.17	80,640	11.21	5,893	0.82	8	0.00
Vermillion	34,377	18,321	2.55	4,948	0.69	840	0.12	7,846	1.09	2,129	0.30	0	0.00
Vigo	248,198	92,875	12.91	51,852	7.21	6,505	0.90	75,035	10.43	17,870	2.48	2	0.00
Totals	719,319	309,888	43.08	132,006	18.35	19,106	2.66	213,198	29.64	32,000	4.45	9	0.00

Data Source = National Ag Statistics Service, 2006, http://www.nass.usda.gov/research/Cropland/SARS1a.htm

% Crop = Sum of the acres of corn, soybeans, wheat, other small grains, etc. divided by the total acres in the watershed.

% Pasture/Hay = Sum of the acres of pasture, hay, and idle land divided by the total acres in the watershed.

% Forest = Sum of the acres of forest land divided by the total acres in the watershed.

% Urban = Sum of the acres of residential and urban land divided by the total acres in the watershed.

% Water/Wetland = Sum of the acres of streams, lakes, ponds, etc. divided by the total acres in the watershed.

% **Data Not Available** = Sum of the acres of clouds on arial photographs divided by the total acres in the watershed.

(data are viewable on the corresponding watershed map)

	Pu	blic Lands
	Public Lands (Ac.)	% of Total
Clay	1,543	0.21
<u>Greene</u>	593	0.08
<u>Knox</u>	380	0.05
<u>Parke</u>	0	0.00
<u>Sullivan</u>	15,988	2.22
<u>Vermillion</u>	23	0.00
<u>Vigo</u>	1,144	0.16
Totals	19.669	2.73

Data Source = Indiana Department of Natural Resources (State-Managed Lands), 2004; Hoosier National Forest - U.S. Forest Service, 2004 and Patoka River USFWS, 2003 (Federal-Managed Lands)

% **Public** = Sum of the acres of federal, state, and local government land divided by the total acres in the watershed.

(data are viewable on the corresponding watershed map)

	Cropland Types														
	Crop (Ac.) % of Total Corn (Ac.) % of Total Wheat (Ac.) % of Total Soybeans(Ac.) % of Total Other (Ac.) % of														
Clay	13,416	1.87	6,991	0.97	507	0.07	4,755	0.66	447	0.06					
<u>Greene</u>	1,245	0.17	438	0.06	120	0.02	410	0.06	70	0.01					
Knox	49,346	6.86	23,359	3.25	4,557	0.63	17,946	2.49	2,924	0.41					
<u>Parke</u>	8,837	1.23	4,876	0.68	206	0.03	3,279	0.46	133	0.02					
Sullivan	125,847	17.50	61,327	8.53	6,266	0.87	49,437	6.87	3,035	0.42					
Vermillion	18,321	2.55	8,724	1.21	356	0.05	8,264	1.15	623	0.09					
<u>Vigo</u>	92,875	12.91	47,994	6.67	3,603	0.50	32,732	4.55	2,960	0.41					
Totals	309,888	43.08	153,710	21.37	15,616	2.17	116,822	16.24	10,191	1.42					

Data Source = National Ag Statistics Service, 2006, http://www.nass.usda.gov/research/Cropland/SARS1a.htm

% Corn = Acres of corn divided by the acres in the watershed.

% Beans = Acres of soybeans + double-crop soybeans/wheat divided by the acres in the watershed.

% Wheat = Acres of wheat divided by the acres in the watershed.

% Other Row Crop = Difference of the sum of the acres of corn, soybeans, and wheat minus total cropland acres in the watershed divided by the acres in the watershed.

(data are viewable on the corresponding watershed map)

Ac.: Acres #: Number Ft.: Feet %: Percent >: Greater Than All data are the measure of that parameter within the Indiana portion of the watershed.

Page 1 of 4

Middle Wabash-Busseron (05120111)

	Beef and Swine Processing											
	Beef Plants	Beef Animals	Swine Plants	Swine Animals								
Clay	0	0	0	0								
<u>Greene</u>	0	0	0	0								
<u>Knox</u>	0	0	0	0								
<u>Parke</u>	0	0	0	0								
<u>Sullivan</u>	0	0	0	0								
Vermillion	0	0	0	0								
<u>Vigo</u>	0	0	0	0								
Totals	0	0	0	0								

Data Source = Indiana Board of Animal Health, 2006 (Slaughter Processing), http://www.in.gov/boah/food_safety/inspection/meat_poulty.html

		Confined Livestock 2006														
	CAFO/CFO*	Dairy Farms An		Be Farms	ef Animals	Sw Farms	vine Animals	Pou Farms	ultry Animals	Sheep Farms Ani						
Clay	2	0	0	0	0	2	4,796	0	0	0	C					
Greene	0	0	0	0	0	0	0	0	0	0	C					
Knox	8	0	0	1	80	3	4,567	5	182,200	0	C					
<u>Parke</u>	0	0	0	0	0	0	0	0	0	0	C					
Sullivan	9	0	0	0	0	4	3,989	5	188,000	0	C					
Vermillion	0	0	0	0	0	0	0	0	0	0	0					
Vigo_	3	0	0	0	0	3	5,900	0	0	0	C					
Totals	22	0	0	1	80	12	19,252	10	370.200	Ŏ	Č					

*Because a CAFO/CFO permit may include multiple types of animals, the total number of permits in the county might be less than the sum of the farms with each animal type. Data Source = Indiana Department of Environmental Management, Office of Land Quality, 2007, http://www.state.in.us/idem/agriculture/livestock/cfo/index.html (data is viewable on the corresponding watershed map)

Confined Animal Feeding Operation (CAFO) = (U. S. Environmental Protection Agency definition) Operations with at least one of the following: 200 dairy cows; 300 veal calves; 300 beef cattle; 750 swine 55 pounds or more; 3000 swine under 55 pounds; 150 horses; 3000 sheep or lambs; 16,500 turkeys; 9000 chickens (liquid manure); 25,000 chickens laying hens (not liquid manure); 17,500 ducks (liquid manure); 17,500 ducks (liqui

sheep; or 30,000 poultry.

Biofuel Plants Ethanol Biodiesel Clay 0 Greene 0 0 Knox 0 0 Parke 0 0 Sullivan 0 Vermillion 0 Vigo 0 Totals

Data Source = Indiana Department of Transportation, 2006 (Biofuels Processing), http://www.in.gov/isda/biofuels/

Surface and Groundwater Resource Concern Areas

	Impaired	Impaired	Wellhead	Karst	
	Streams (Mi.)	Lakes (Ac.)	Protection (Ac.)	(Ac.)	% Karst
<u>Clay</u>	0.19	0	770	0	0.00
<u>Greene</u>	3.56	0	0	0	0.00
<u>Knox</u>	22.15	0	1,376	0	0.00
<u>Parke</u>	0.00	0	0	0	0.00
<u>Sullivan</u>	83.09	0	1,809	0	0.00
<u>Vermillion</u>	0.00	0	1,403	0	0.00
<u>Vigo</u>	45.78	0	10,123	0	0.00
Totals	154.77	0	15,481	0	0.00

Data Source (Impaired Water Bodies) = 2006 Indiana Department of Environmental Management 303(d) List, http://www.state.in.us/idem/programs/water/303d/index.html (data is viewable on the corresponding watershed map) 303(d)-listed streams = impaired waterbodies that have been identified by IDEM as exceeding threshold limits of specific

Data Source (Wellhead Protection Areas) = Indiana Department of Environmental Management, 2007, http://www.in.gov/idem/programs/water/swp/whpp/ (data is not available for viewing)

Data Source (Karst) = Karst Data, 2002, Indiana NRCS, data unpublished (data are viewable on the corresponding watershed map)

<: Less Than

Mi.: Miles

Soils-Based Resource Concerns and Analyses

	Hydric (Ac.)	%	Leaching Index >= 10 (Ac.)	%	Subsurface Drainage= H/VH (Ac.)	%	Soil Erosion (Wind) >500 (Ac.)	%	Potential for Frequent Flooding (Ac.)	%	Surface Runoff Class =H/VH (Ac.)	%	Soil Erosion (Water) >37 (Ac.)	%	Sheet/Rill Erosion Potential Between 1T & 2T (Ac.)	%	Sheet/Rill Erosion Potential >=2 (Ac.)	%
<u>Clay</u>	1,586	0.22	13,068	1.82	18,944	2.63	0	0.00	2,069	0.29	5,003	0.70	14,240	1.98	3,837	0.53	1,118	0.16
<u>Greene</u>	0	0.00	3,670	0.51	0	0.00	0	0.00	454	0.06	2,663	0.37	6,313	0.88	1,916	0.27	1,259	0.18
<u>Knox</u>	19,461	2.71	78,944	10.97	0	0.00	0	0.00	11,002	1.53	4,663	0.65	32,362	4.50	2,135	0.30	4,634	0.64
<u>Parke</u>	1,133	0.16	8,321	1.16	7,952	1.11	0	0.00	1,308	0.18	2,866	0.40	4,637	0.64	2,893	0.40	303	0.04
Sullivan	19,679	2.74	135,097	18.78	122,473	17.03	0	0.00	44,151	6.14	53,237	7.40	77,086	10.72	17,047	2.37	12,226	1.70
<u>Vermillion</u>	8,410	1.17	315	0.04	16,877	2.35	21	0.00	3,472	0.48	3,303	0.46	3,087	0.43	208	0.03	1,431	0.20
<u>Vigo</u>	28,206	3.92	195,765	27.22	120,476	16.75	5,617	0.78	42,094	5.85	41,031	5.70	53,872	7.49	15,070	2.10	7,598	1.06
Totals	78,475	10.91	435,180	60.50	286,722	39.86	5,638	0.78	104,550	14.53	112,766	15.68	191,597	26.64	43,106	5.99	28,569	3.97

Data Source (Hydric Soils) = NRCS Soil Data Mart (2007) - http://soildatamart.nrcs.usda.gov/. A soil mapunit was considered hydric if a majority of its component soils is hydric.

Data Source (Sheet/Rill Erosion Potential) = NRCS Soil Data Mart, 2007, http://soildatamart.nrcs.usda.gov/ and the Revised Universal Soil Loss Equation, Version 2 (RUSLE2). Erosion potential is based on the RUSLE2 calculation for the soil with a "C" Factor equal to that of a typical cropland management system used in Indiana (no-till soybeans, followed by chisel-plowed corn with an injected anhydrous application). Soils (if used to produce annual crops) under this management system between 1 and 2 times of tolerable limits are eroding above sustainable levels; soils (if used to produce annual crops) under this management system greater than 2 times of tolerable limits may be ineligible for certain USDA benefits. Management systems that leave more residue on the surface, those with less soil disturbance, crop rotations with higher-residue crops, etc. will decrease soil erosion compared to those under the typical cropland system. Management systems that leave less residue, disturb the soil more, and those with crop rotations with lower-residue crops may increase soil erosion above the typical cropland system.

Data Source (Leach Index, Wind Erosion, Water Erosion, Flood Potential, and Surface and Subsurface Drainage) = NRCS Soil Data Mart, 2007, http://soildatamart.nrcs.usda.gov/ and the NRCS Indiana Offsite Risk Index (ORI) (Section II of the Indiana Field Office Technical Guide (FOTG)). http://efotg.nrcs.usda.gov/efotg-locator.aspx?map=IN. NOTE: Because climatic and other data elements may be county-based, threshold values may differ among adjacent counties and result in abrupt data thresholds.

Hydric soils = Characterized by, relating to, or requiring an abundance of water. Hydric soils may be indicators of wetlands, which represent unique management considerations including groundwater impacts, crop production limitations, wildlife considerations, etc. A soil mapunit was considered hydric if a majority of its component soils is hydric.

Leach Index = soils with a relatively high risk of water percolating below the crop root zone; developed using annual precipitation, rainfall distribution data and hydrologic soil groups.

Subsurface Drainage = soils with a relatively high risk of having subsurface drainage; determined from a matrix based on soil drainage class and depth to seasonal high water, and the presence of artificial subsurface drainage and surface tile inlets.

Soil Erosion (Wind) = soils with a relatively high risk of eroding by wind; determined from a location's C (Climate) Factor and a soil's Soil Erodibility Index (I).

Flooding Potential = soils with a relatively frequent risk of being covered by flowing water from any source; determined from the NRCS soil survey.

Surface Runoff Class = soils with a relatively high risk of soil solution movement from the surface of a management unit; determined using soil permeability and percent slope.

Soil Erosion (Water) = soils with a relatively high risk of eroding by water; determined from a location's R (Rainfall-Runoff Erosivity) Factor, and a soil's K (Soil Erodibility) and LS (Length-Slope) factors.

(All data are viewable on the corresponding watershed map)

	Water Resources													
	Standing Water (Ac.)	Streams (Mi.)	1st Order (Mi.)	2nd Order (Mi.)	3rd Order (Mi.)	4th Order (Mi.)	5th Order (Mi.)	6th+ Order (Mi.)	Stream Order Unavailable (Mi.)					
Clay	534	50.03	32.87	11.03	4.95	0.00	0.00	0.00	1.19					
<u>Greene</u>	123	8.27	7.86	0.41	0.00	0.00	0.00	0.00	0.00					
<u>Knox</u>	205	122.33	63.54	36.45	0.00	0.00	0.00	22.33	0.00					
<u>Parke</u>	26	32.51	20.90	8.72	2.89	0.00	0.00	0.00	0.00					
<u>Sullivan</u>	4,642	275.25	151.45	66.80	11.02	21.74	0.00	20.09	4.14					
<u>Vermillion</u>	357	63.07	38.35	9.65	2.62	0.09	12.37	0.00	0.00					
<u>Vigo</u>	2,692	356.44	160.87	45.68	64.98	10.39	2.51	34.78	37.23					
Totals	8,578	907.89	475.83	178.74	86.46	32.22	14.88	77.21	42.56					

Data Source = National Hydrography Data - U.S. Geological Survey, 2006, http://www.horizon-systems.com/nhdplus/

Stream Order = A hierarchal stream classification system. The confluence of two first order streams forms a second order stream; the confluence of two second order streams forms a third order stream; etc. Generally, larger order streams (such as the Ohio or Mississippi Rivers) have more volume, depth and channel width. They also are located in the lower reaches of watersheds. First order streams (unforked or unbranched streams) are in the upper reaches of watersheds. (data are viewable on the corresponding watershed map)

Air Resource Concern Areas

	% of
	Watershed
Clay	0.00
<u>Greene</u>	1.20
Knox	0.00
<u>Parke</u>	0.00
<u>Sullivan</u>	0.00
<u>Vermillion</u>	0.00
<u>Vigo</u>	34.49
Totals	35.69

Data Source = Environmental Protection Agency, 2006, data no longer published.

(data are viewable on the corresponding watershed map)

Ac.: Acres #: Number Ft.: Feet %: Percent

Mi.: Miles

%: Percent <: Less Than >: Greater Than

All data are the measure of that parameter within the Indiana portion of the watershed.

Unique Habitat Areas

Ac. Within Range of Known T & E Species	% of Watershed Within Range of Known T & E Species	Natural Communities (Ac.)	Permanent Easement (Ac.)	% of Watershed in Permanent Easement
93,974.92	13.06	401.20	10,776.40	1.50

Data Source (Threatened & Endangered (T & E) Species and Natural Communities) = Indiana Department of Natural Resources, Division of Nature Preserves; Analysis by NRCS, 2007, data source is not public. Habitat ranges indicate the likely life-history range surrounding known locations of threatened & endangered species (state and federal listed) that have the potential to be used by the species (ranges for plants = point - 0 miles; amphibians/reptiles/insects/aquatic species = 1/4 - 1/2 mile; mammals/birds = 1 mile).

Data Source (Natural Communities) = Areas identified and classified by the IDNR as unique/rare (data include the Natural Community acreage + ¼ mile buffer), data not published.

Data Source (Permanent Easements) = Indiana NRCS (Wetlands Reserve Program), 2008 data not published

	Farm Census Data														
	Farms	Farms <10 Ac.	Farms <50 Ac.	Farms <180 Ac.	Farms <500 Ac.	Farms <1000 Ac.	Farms >1000 Ac.	Minority Farmers	Full Time Farmers	Part Time Farmers					
Clay	98	6	34	23	20	8	8	1	14	42					
<u>Greene</u>	21	1	6	8	3	1	1	0	2	11					
Knox	146	10	26	34	30	19	26	1	24	50					
<u>Parke</u>	28	1	8	9	5	2	3	0	5	12					
Sullivan	411	15	104	123	80	34	55	0	71	157					
Vermillion	51	2	13	14	9	5	9	1	7	19					
<u>Vigo</u>	441	48	159	118	44	37	36	14	66	212					
Totals	1,196	83	350	329	191	106	138	17	189	503					

Data Source = National Ag Statistics Service 2002 Census of Agriculture (http://www.nass.usda.gov/census/census/2/volume1/in/index2.htm). Estimates for each watershed were derived from county values based on the percentage of each county in the watershed.

	NRCS Practices															
Year:	Vegetative Agronomic Practices (Ac.)	No Till (Ac.)	Mulch Till (Ac.)	Upland Buffers (Ft.)	Aquatic Buffers (Ac.)	Grazing Practices (Ac.)	Nutrient Mgt. (Ac.)	Pest Mgt. (Ac.)	Irrigation (Ac.)	CNMPs (#)	Gully Control Grassed Waterway (Ac.)	Gully Control Other (#)	Wildlife Habitat (Ac.)	Forestry Practices (Ac.)	Confined Livestock Waste Storage (#)	Wetland Practices (Ac.)
2007	1,690	9,131	3,165	30,536	51	2,210	14,545	13,253	342	1	18	86 57	4,316	1,137	0	958
2006	1,050	189	177	3,558	19	529	9,738	9,618	0	0	5	57	1,174	292	0	615
2005	593	45,210	19,055	20,753	53	264	55,476	54,383	0	165	50	567	808	238	0	1,579
2004	195	586	671	24,900	123	168	694	32	77	n/a	0	0	493	591	0	390
2003	n/a	2,083	2,493	41,422	343	400	3,115	2,637	0	1	n/a	n/a	3,684	504	6	930
2002	n/a	1,865	4,212	9,172	361	186	3,958	3,608	0	0	n/a	n/a	2,359	422	4	211
Totals (2002-2007):	3,528	59,064	29,773	130,341	950	3,757	87,526	83,531	419	167	73	710	12,834	3,184	10	4,683

Data Source = NRCS Performance Results System Reports, 2007, http://ias.sc.egov.usda.gov/prshome/index.aspx.

Vegetative Agronomic Practices = Acres of Conservation Cover (327) + 342 (Critical Area Planting) + 340 (Cover Crops) practices installed in the given fiscal year.

No-Till = Acres of Residue & Tillage Management, No-Till/Strip Till/Strip Til

Mulch-Till = Acres of Residue & Tillage Management, Mulch Till (345) + Residue Management, Mulch Till (329B) practices installed in the given fiscal year.

Upland Buffers = Feet of Field Border (386) + Windbreak/Shelterbelt Establishment (380) + Hedgerow Planting (422) + Windbreak/Shelterbelt Renovation (650) practices installed in the given fiscal year.

Aquatic Buffers = Acres of Filter Strips (393) + Riparian Forest Buffers (391) practices installed in the given fiscal year.

Grazing Practices = Acres of Prescribed Grazing (528 and 528A) + Pasture and Hayland Planting (512) practices installed in the given fiscal year.

Nutrient Mgmt = Acres of Nutrient Management (590) + Waste Utilization (633) practices installed in the given fiscal year.

Pest Mgmt = Acres of Pest Management (595) practices installed in the given fiscal year.

Irrigation = Acres of Irrigation System, Microirrigation (441) + Irrigation System, Sprinkler (442) + Irrigation System, Syrinkler (442) + Irrigation System, Sprinkler (443) + Irrigation System, Microirrigation (441) + Irrigation System, Sprinkler (442) + Irrigation System, Sprinkler (442) + Irrigation System, Sprinkler (443) + Irrigation System, Microirrigation (441) + Irrigation System, Sprinkler (442) + Irrigation System, Sprinkler (443) + Irrigati

CNMPs = Number of Comprehensive Nutrient Management Plans written in the given fiscal year.

Gully Control - grassed waterways = Acres of Grassed Waterway (412) practices installed in the given fiscal year.

Gully Control - other = Acres of Grade Stabilization Structure (410) + Water and Sediment Control Basin (638) practices installed in the given fiscal year.

Wildlife habitat = Acres of Upland Wildlife Habitat Management (645) + Wetland Wildlife Habitat Management (647) + Restoration and Management of Rare and Declining Habitats (653) + Early Successional Habitat Development/Management (647) practices installed in the given fiscal year.

Forestry Practices = Acres of Tree/Shrub Establishment (612) + Forest Stand Improvement (666) practices installed in the given fiscal year.

Confined Livestock Waste Storage Facilities = Number of Waste Storage Facility (313) + Composting Facility (317) + Waste Treatment Lagoon (359) practices installed in the given fiscal year.

Wetland Practices = Acres of Wetland Restoration (657) + Wetland Creation (658) + Wetland Enhancement (659) practices installed in the given fiscal year.