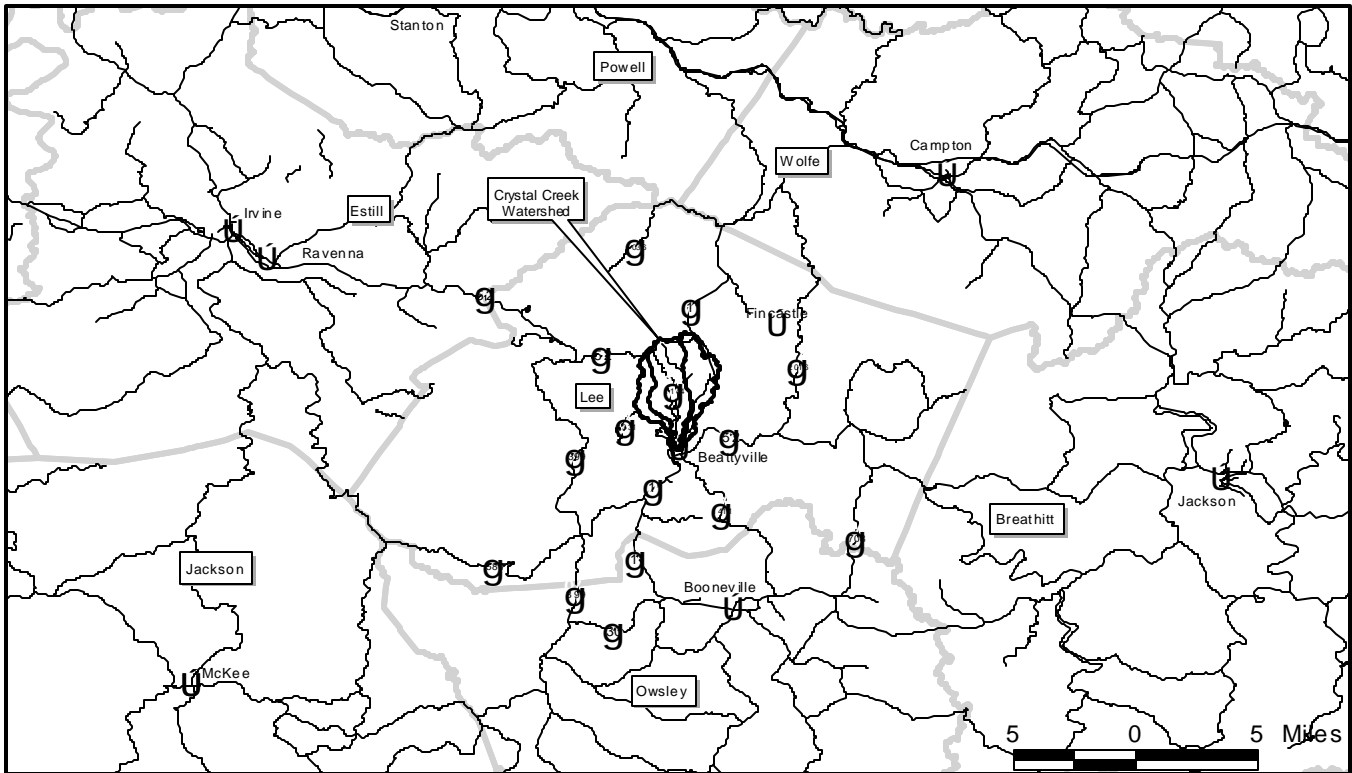


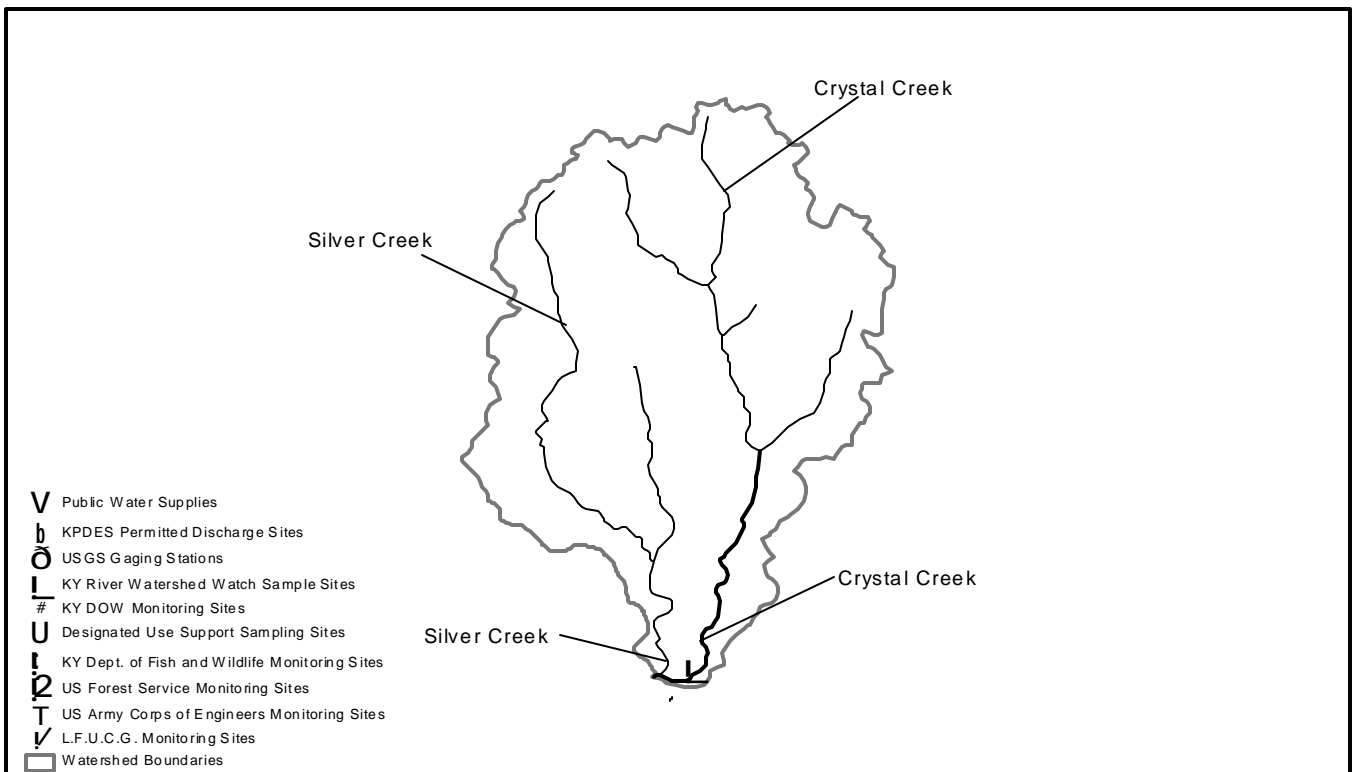
Crystal Creek Watershed

Watershed Number: 05100201230

Location Map



Watershed Features



Geography. The Crystal Creek watershed lies in central Lee County. The land is in the plateau area of the Eastern Kentucky Coal Field physiographic region, characterized by rolling terrain, medium to rapid surface runoff, and slow to moderate groundwater drainage. The watershed is underlain by coals, sandstones, and shales: this geology is generally conducive to productive wells, although water quality may be low for wells that draw from coal layers. Parts of the watershed lie over sandstone aquifers.

Waterways. Crystal Creek empties into the Kentucky River at Beattyville. Among the creeks that feed it are Threemile Branch. Silver Creek, just to the west, is also included in this watershed.

Land and water use. Land in the watershed is mostly rural and wooded, but 15% is agricultural. No businesses or organizations hold permits for discharges into the creeks. See tables for details.

Agency data assessment. No creeks in this watershed were assessed.

Watershed rankings. The ranking formula provides a preliminary ranking by synthesizing a broad spectrum of watershed characteristics, current conditions, and threats. This watershed ranks in the group with the lowest need for protection and/or restoration. This rating is for the watershed on average: particular sites and particular waters within the watershed may vary widely. See tables for details.

Volunteer data. Data show high levels of bacteria indicative of fecal contamination in Crystal Creek (above 200 colonies/ml). Levels of sulfur, copper, and thallium were elevated at the site. See tables for details.

This report was prepared by the Kentucky Water Research Institute as a product of the statewide Kentucky Watershed Management process. Information presented in this report was collected from many sources. Reasonable attempts were made to ensure that information and figures are as accurate as possible, but no representation or guarantee is made as to either the correctness or suitability of information for particular purposes. All critical information should be independently verified. Please address questions or corrections to Basin Coordinator, KWRI, Rm. 233 Mining and Minerals Resources Building, University of Kentucky, Lexington, Kentucky 40506-0107.

Summary of Basin Characteristics and Facilities

General Land-use Characteristics:

Total Land Area (Acres):	5,350	Acres	% of Total		
Residential Area:	75		1.4	Number of Mine Permits:	0
Commercial Area:	73		1.4	Total Permitted Mining Area (Acres):	0
Industrial Area:	10		0.2	Number of Identified Wetland Areas:	0
Agricultural Area:	774		14.5	Total Wetland Area (Acres):	0
Rural and Wooded Area:	4,409		82.5		
Other Land-use Area:	0		0.0		

Withdrawal and Discharge Sites:

Number of Public Water Supplies and Water Withdrawal Sites:	0	Number of KPDES Discharge Permits:	0
Surface Water Withdrawals:	0		
Groundwater Withdrawals:	0		
No. of Potable Water Treatment Facilities:	0		

Sampling Site Statistics:

Number of USGS Gaging Stations:	0
Number of Kentucky Division of Water Sampling Sites:	0
Number of Kentucky Dept. of Fish and Wildlife Sampling Sites:	0
Number of US Forest Service Sampling Sites:	0
Number of US Army Corps of Engineers Sampling Sites:	0
Number of Kentucky River Watershed Watch Sampling Sites:	1
Number of Lexington-Fayette Urban Co. Gov. Sampling Sites:	0

Watershed Name:

Crystal Creek

11-Digit Watershed Identity Number:

05100201230

Watershed Indicators and Ranking Categories: **Overall Watershed Ranking:**

Protection Ranking	Observed Impacts	Potential Impacts	Restoration Ranking	Low
Medium	Medium	Low	Medium	

Protection Categories:

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Wetland Areas	0	Acres	0 - 106	12
Surface Drinking Water Sources	0	No. of sources	0 - 14	2
Ground Drinking Water Sources	0	No. of sources	0 - 17	1
Groundwater Sensitivity	3.00	Score	2 - 5	3.21
KY Dept. of Fish and Wildlife Management Areas	0	Acres	0 - 2951	93
U.S. Forest Service Management Areas	5,207	Acres	0 - 155253	12,600
Kentucky State Park Areas	0	Acres	0 - 1928	42
Nature Preserves Commission Areas	0	Acres	0 - 1430	32
Nature Conservancy Areas	0	Acres	0 - 2473	28
Reference Reach Watersheds	0.00	Score	0 - 100	3.08
Outstanding Resource Watersheds	0.00	Score	0 - 0	0.00
Recognized Stream Resources	0	No. of resources	0 - 8	1
Kentucky Rivers Assessment Scores	0.00	Score	0 - 11	1.80

Observed Impact Categories:

Human Health Impact Categories:

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Flood Declarations	5	Number since 1970	0 - 10	4
Water Supply Inadequacy	0.00	Score	0 - 2	0.22
Observed Impacts to Surface Drinking Water	1.00	Score	1 - 1	1.00
Observed Impacts to Fish Consumption	1.00	Score	1 - 1	1.00
Observed Impacts to Primary Water Contact	1.00	Score	1 - 3	1.33
Contamination Sites Impacting Human Health	0	Number of sites	0 - 71	4

Ecological Health Impact Categories:

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Observed Impacts to Aquatic Life	1.00	Score	1 - 3	1.31
Contamination Sites Impacting Ecological Health	0	Number of sites	0 - 71	4

Potential Impact Categories:

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Potential Contamination Sites	1	Number of sites	1 - 121	12
Potential Pesticide Loading	1	Est. sales in tons	0 - 45	10
Potential Fertilizer Loading	8	Est. tons applied	0 - 2747	394
Agricultural Erosion Potential	7.04	Est. tons erosion / acre	0 - 9	3.20
Livestock Operations Potential Impact	90	Animal units	55 - 43826	7,021
KPDES Discharge Violations	0	Number of violations	0 - 541	39
KY Division of Water Citizen Complaints	1	Number of complaints	0 - 53	9
Toxic Release Inventory	0	Score	0 - 11547626	231,638
Population Change Projection	36	Number of persons	-149 - 11030	448
Population Not on Public Sewer Systems	101	Number of persons	12 - 4511	1,114
Mining Area	0	Acres	0 - 6305	355
Surface Water Runoff Potential	61.47	SCS Curve Number	60 - 79	68
KPDES Permitted Discharges	0	Number of sites	0 - 56	6

Watershed Name: Crystal Creek

11-Digit Watershed Identity Number: 05100201230

Stream and Waterbody Use Support Summary

<i>Total Stream Miles:</i> <input type="text" value="18.18"/>	<i>Number of Segments</i>	<i>Stream Miles Assessed</i>	<i>Miles * Fully Supportina</i>	<i>Miles * Partially Supportina</i>	<i>Miles * Not Supportina</i>	<i>Miles * Threatened</i>
<i>Segments Assessed:</i>	0	0.0				
<i>Designated Uses</i>						
<i>Aquatic Life:</i>	0	0.0				
<i>Primary Contact:</i>						
<i>Fish Consumption:</i>						
<i>Drinking Water:</i>						

* Blank values indicate no assessed segments for this category.

Watershed Name: Crystal Creek

11-Digit Watershed Identity Number: 05100201230

Withdrawal Sites and Discharge Facilities:

Gaging Stations and Sampling Sites:

<i>KY River Watershed Watch Sampling Sites</i>		
<i>Stream Name</i>	<i>KRWW Sample ID No.</i>	<i>Site Description</i>
Crystal Creek	K88	Right off main st. in Beattyville onto Locust Rd. 0.

Watershed Name:

Crystal Creek

11-Digit Watershed Identity Number:

05100201230

Results from 1999 KY River Watershed Watch Sampling:

Conventional Parameters:

Sample ID Number: K88 Stream: Crystal Creek

Physical Data (May):

pH	6.9	Alkalinity	59
Temperature	0	Total Hardness	340
Dissolved Oxygen	8.2	Chlorides	20.4
		Conductivity	773
		Total Organic Carbon	2.3
		Total Suspended Solids	

Fecal Data (July / August):

	Coliform Count	Strep Count	Coliform/Strep Ratio
July	700	9000	0.078
August			

Note: Most indicators are in milligrams per liter (mg/L) which is equivalent to parts per million (ppm). Temperature is in Celsius degrees. Alkalinity and hardness are as mg/L of calcium carbonate. Bacterial counts are in colonies per 100 milliliters. Conductivity units are micro-mhos per centimeter.

Nutrient Parameters:

Sample ID Number: K88 Stream: Crystal Creek

Ammonia	0.12	Orthophosphate as Phosphate	0.018	Sulfate	312
Ammonia Nitrogen	0.10	Orthophosphate as Phosphorus	0.006		
Total Kjeldahl Nitrogen as NH3		Total Recoverable Phosphorus			
Total Kjeldahl Nitrogen as N					
Nitrate	0.2				
Nitrate Nitrogen	0.4				

Note: All indicators are in milligrams per liter (mg/L) which is equivalent to parts per million (ppm).

Metals and Mineral Parameters:

Sample ID Number: K88 Stream: Crystal Creek

Aluminum	0.01	Calcium	74.81	Lead		Selenium		Thallium	0.03
Antimony		Chromium		Lithium		Silicon	1.93	Vanadium	
Barium	0.18	Cobalt		Magnesium	37.87	Sodium	25.36	Zinc	0.003
Beryllium		Copper	0.009	Manganese	0.69	Strontium	0.59		
Boron	0.10	Iron	3.76	Potassium	6.94	Sulfur	77.22		

Note: All indicators are in milligrams per liter (mg/L) which is equivalent to parts per million (ppm).

Pesticide/Herbicide Parameters:

Sample ID No. Stream 2,4-D Chlorpyrifos Triazines

K88	Crystal Creek			
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Note: All indicators are in micrograms per liter which is equivalent to parts per billion (ppb).