Part Two:
Watershed Summaries by Region
Watershed Summaries:  
Introduction and Explanation

The 97 watershed summaries provide a snapshot of each watershed: descriptive information, results of framework rankings, highlights of critical issues and activities, diagrams of its position in the basin, and a map. The summaries provide a compilation of information on the critical issues in the river basin, broken down watershed by watershed. By bringing together important but scattered information in this format, we hope both to facilitate the identification of watersheds that meet specific targeting criteria and to aid discussions of interrelated issues in individual watersheds.

See below for explanations and sources for each element of the summaries. Summaries are organized into sections for the ten regions of the basin, which are hydrologic groupings of watersheds. See page 117 for a map of the regions in the basin. Indexes to watershed summaries by name, region, and county begin on page 405.

Watershed name. Watershed names are based on the name of the stream that carries water out of the watershed. Distinguishing modifiers are added in cases when the same stream (or two streams with the same name) forms the main stem of more than one watershed. A few of the watershed names have been altered since publication of the Kentucky River Basin Assessment Report. These changes are listed in the table on page 403.

Watershed number. Watersheds listed here are designated by unique 11-digit Hydrologic Unit Codes (HUCs) assigned by the U.S. Geological Survey (USGS). The first six digits designate the Kentucky River Basin (051002), the next two digits indicate one of the five subbasins, and the final three digits code for a particular watershed.

Basic information on geography, waterways, land and water use, and the results of agency assessments of individual streams comes from the Kentucky River Basin Assessment Report (August 2000). The original sources of this information appear in the list on the following pages.

At the bottom left of each summary is a box containing rankings calculated during the prioritization phase of the basin cycle and also a mobilization category. For rankings, “high” indicates a greater need for restoration or protection than “medium” or “low,” relative to other watersheds in the river basin. The watershed information used to calculate the rankings is provided in Appendix A (page 373). The basic methodology for the ranking calculation is available at kywatersheds.org and is summarized in the Kentucky River Basin Assessment Report. Framework mobilization categories (I to IV) indicate the current priority for future outreach
and organization of watershed management activity in the watershed, based on both need and feasibility (see the framework mobilization strategy on page 16). The present three priority watersheds comprise category I. The watersheds in categories II and III are likely candidates for the next round of priority watersheds.

Watershed highlights present critical information related to water supply protection, sewage, impaired waterways and total maximum daily load (TMDL) status, selected ranking metrics, and other data. Specific sources and criteria for the highlights are listed below. Source water protection zones are those identified under the Source Water Assessment and Protection Program (SWAPP) as draining to a public water supply intake. Impairments reflect assessments by DOW of the degree to which monitored waterways meet requirements to support aquatic life and use for drinking water supply and recreation. Assessments for each use designate stream segments that support, partially support, or do not support the use.

Diagrams at the upper right indicate (in white) the region to which the watershed belongs and the location of the watershed within the region. At bottom right is a map depicting the watershed boundaries, stream drainage pattern, sewage plants, and water supply intakes. Color maps of each region (with highways and some stream names) are included in this report on pages 119 to 139.

**Explanations and sources for information in summaries**

**Watershed Narrative.**


*Waterways.* Descriptions of waterways were derived from EPA Reach File 3 and/or National Hydrographic Dataset geographic information system (GIS) data and from maps constructed from those data by KWRRI staff. Some information was verified by reference to *Kentucky Atlas and Gazetteer* (Yarmouth, Maine: DeLorme, 1997).

*Land and water use.* Land use, drinking water systems, and permits for discharges were derived from GIS coverages from EPA and Kentucky DOW.

*Agency data assessment.* Data assessments and related information were derived from “2000 Kentucky Report to Congress on Water Quality” [305(b) report; http://water.nr.state.ky.us/wq/305b/2000/index.htm]. Some additional information may come from “1998 303(d) List of Waters for Kentucky” (a list of water bodies not supporting designated uses; http://wwater.nr.state.ky.us/303D/).
Watershed Highlights.

Watershed area was derived from the GIS shape file for HUC-11 watersheds, originally developed by USGS.

Drinking water sources were identified from DOW’s GIS shape file for permitted water withdrawals.

Source water protection zones were identified from preliminary GIS shape files for zone 1, zone 2, and zone 3 areas developed for DOW SWAPP. Zone 1 covers the drainage area from 0.25 miles below the intake to 5 miles above. Zone 2 extends to 10 miles upstream, and zone 3 extends to 25 miles upstream.

Municipal sewage plants were identified from DOW’s GIS shape file for permitted discharges.

Stream and lake assessments (designated use support, or impairment) were done by DOW for Kentucky’s 2000 Report to Congress [305(b) report] and 1998 List of Impaired Water Bodies [303(d) report]. Kentucky did not submit a 303(d) report in 2000. Full information can be found in the DOW documents cited.

TMDL status reflects action on segments listed in the 1996 and 1998 303(d) list. TMDL stands for total maximum daily load. The TMDL program analyzes the pollution reduction needed to bring impaired streams back into compliance. The notations “TMDL 1st priority 2002” and “TMDL 2nd priority 2002” are based on the assumption that, when the 2002 303(d) list is issued in October 2002, segments in nonsupport will be assigned first priority and segments in partial support will be assigned second priority, as in the past.


PRIDE censuses of straight pipes and failing septic systems are derived from shape files on the CD-ROM “PRIDE GIS Data” (Kentucky ADDs, 2000). The census was produced for Eastern Kentucky PRIDE, not the newer Bluegrass PRIDE, so “PRIDE service region” refers here to the 40-county area served by Eastern Kentucky PRIDE (see map of PRIDE areas on page 141).

Appendix A contains full information on the ranking metrics employed to compare the watersheds of the basin during the prioritization phase of the watershed management cycle. The following ranking metrics are cited in the highlights, as outlined below.

The notation that “water supply is a critical issue” appears for watersheds rated 2 (on a scale of 0 to 2) for supply inadequacy by the DOW Water Resources Branch as part of the watershed ranking process in 2000. The notation that “water supply is an issue” appears for watersheds rated 1 on the same scale.
Data on the potential for agricultural erosion were compiled for the watershed ranking database from county data provided by NRCS. The notation that “the potential for agricultural erosion is substantially higher than the basin average” indicates that the calculated watershed value exceeded 4 tons per acre (about the 75th percentile) relative to the basin average of 3.2 tons/acre. This erosion potential includes only the potential for erosion from cultivated fields and does not assess the potential for streambank erosion or erosion caused by nonagricultural activities in a watershed.

Groundwater sensitivity ratings were compiled for the watershed ranking database by the DOW Groundwater Branch in 2000. The notation that “groundwater is substantially more sensitive than the basin average” indicates that the rating exceeded 3.3 (about the 75th percentile) relative to the basin average of 3.2. The range for all watersheds in the basin fell between 2 and 5.

Livestock numbers were compiled for the watershed ranking database from county data provided by the Kentucky Department of Agriculture. The notation that “livestock density is substantially higher than the basin average” indicates that the number of equivalent animal units exceeded 160 per square mile (about the 70th percentile) relative to the basin average of 100 per square mile and median of 60 per square mile.

Population without access to public sewers was derived from 1990 U.S. census data by Kimberly Prough for the watershed ranking database in 1997. The notation that “population without access to public sewers is substantially higher than the basin average” indicates that unsewered population exceeds 20 per square mile (about the 70th percentile), relative to the basin average of 16 per square mile. This information is not included for watersheds for which a PRIDE estimate of the number of straight pipes and failing septic systems is available.
North Fork Region
North Fork Kentucky River headwaters watershed (051002-01-010)

**Geography.** The North Fork Kentucky River headwaters watershed occupies central Letcher County. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

**Waterways.** The North Fork Kentucky River flows east and crosses a watershed boundary near Blackey, where Rockhouse Creek joins it to flow into the North Fork Kentucky River near Hazard watershed. Among the many creeks that feed it in the headwaters watershed above Blackey are Millstone Creek, Potter Fork, Cram Creek, and Pine Creek.

**Land and water use.** Land in the watershed is nearly all rural and wooded. The surface waters of the watershed supply the drinking water for municipal systems of Whitesburg and Fleming-Neon. Twenty-four businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed include four that do not support some or all of their designated uses, based on biological and/or water-quality data. Siltation, pH, and organic enrichment from effluent of septic systems contribute to the impairment of these streams. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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160
Watershed Highlights

Watershed covers 131 square miles.
Provides drinking water for Whitesburg, Fleming-Neon.
Part of source water protection zones 1, 2, 3 for Blackey.
Whitesburg and Fleming-Neon discharge treated sewage.
Fleming-Neon plant has not always met limits.
Covered by TMDL program’s North Fork pathogen report.
No 2000 DOW assessments for pathogens.
Sediment impairs aquatic life in North Fork (Cowan Cr. to Boone Fk) and in Left Fk. Millstone; sewage impairs aquatic life in Potter Fk. (1st priority TMDL 2002).
Watershed Watch focused sampling showed high bacteria throughout the watershed, low pH in Crafts Colly Creek.
Water supply is a critical issue. KGS study funded by KRA says deep mine at Crafts Colly is potential source.
Watershed is in PRIDE service region. PRIDE identified 1,307 straight pipes or failing septic systems in watershed.
Rockhouse Creek watershed  
(051002-01-020)

**Geography.** The Rockhouse Creek watershed covers northeastern Letcher County. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

**Waterways.** Rockhouse Creek empties into the North Fork Kentucky River close to Blackey. Among the many creeks that feed it are Razorblade Branch, Stampers Branch, Camp Branch, Doty Creek, and Blair Branch.

**Land and water use.** Land in the watershed is nearly all rural and wooded. Eight businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** Of two assessed creek segments in this watershed, one does not support some or all of its designated uses, based on biological and/or water-quality data. The other is threatened. A wide variety of activities contribute to the impairment of the creek by pathogens, siltation, and turbidity. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 56 square miles.
Part of source water protection zones 1, 2, and 3 for the Blackey water system.
Pathogens make contact recreation unsafe in lower 3.6 miles of Rockhouse Creek (below Letcher County High School; 1st priority TMDL 2002).
Aquatic life in Rockhouse Creek is classified as threatened by salinity from resource extraction [2000 305(b)].
Watershed Watch focused sampling demonstrated very high bacterial counts at 6 sites in this watershed, and, in 2000, geometric means of 3 samples exceeded 1,000 col/100 ml at 13 of 15 sites and exceeded 500 col/100 ml at the other 2 sites.
Watershed is in PRIDE service region. PRIDE identified 323 straight pipes or failing septic systems in the watershed.

LEGEND

Area of this watershed

Sewage plants

Public water supplies

Other water withdrawals

Locks & dams

Cities and towns

Rivers and larger streams

Smaller streams

County borders

See the color map of this region on p. 119.
North Fork Kentucky River watershed near Hazard (051002-01-030)

**Geography.** The North Fork Kentucky River watershed near Hazard covers the northwest corner of Letcher County and part of southeast Perry County. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

**Waterways.** This watershed includes the section of the North Fork between the mouth of Rockhouse Creek (near Blackey) and the mouth of Big Creek (between Combs and Typo at the Daniel Boone Parkway). Among many creeks that feed it within this watershed are Bull Creek, Big Branch, and Buckeye Creek. Water also flows into this watershed from the North Fork headwaters, Rockhouse Creek, Line Fork, Leatherwood Creek, Maces Creek, Carr Fork and Lotts Creek watersheds.

**Land and water use.** Land in the watershed is nearly all rural and wooded. The surface waters of the watershed supply the drinking water for municipal systems in Blackey and Hazard. Nine businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segment in this watershed does not support some or all of its designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 63 square miles.
Provides drinking water for Blackey and Hazard.
Hazard discharges treated sewage into the watershed.
Covered by TMDL program’s North Fork pathogen report.
Pathogens make contact recreation unsafe in the North Fork
between the Daniel Boone Parkway (Big Creek) and
Hazard [2000 305(b)].
In 2000, the geometric mean of 3 fecal coliform samples
taken by Watershed Watch from the North Fork at Perry
County Park exceeded 8,000 col/100 mls.
Watershed is in PRIDE service region. PRIDE identified 69
straight pipes or failing septic systems in the watershed.

LEGEND

Area of this watershed

Sewage plants

Public water supplies

Other water withdrawals

Locks & dams

Cities and towns

Rivers and larger streams

Smaller streams

County borders

See the color map of this region on p. 119.
Line Fork watershed (051002-01-040)

**Geography.** The Line Fork watershed covers southwestern Letcher County. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

**Waterways.** Line Fork empties into the North Fork Kentucky River at Ulvah. Among the creeks that feed it are Turkey Creek, Defeated Creek, and Shipley Branch.

**Land and water use.** Land in the watershed is nearly all rural and wooded. Three businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed include one that only partially supports its designated uses, based on biological and/or water-quality data. Septic tanks and land disposal of waste contribute to impairment of the stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 65 square miles.
Part of source water protection zone 3 for the Hazard water system.
Pathogens partially impair contact recreation in Line Fork above Defeated Creek [listed 2000 305(b)].
Watershed is in PRIDE service region. PRIDE identified 138 straight pipes or failing septic systems in the watershed.

LEGEND
Area of this watershed
Sewage plants
Public water supplies
Other water withdrawals
Locks & dams
Cities and towns
Rivers and larger streams
Smaller streams
County borders

See the color map of this region on p. 119.
Leatherwood Creek watershed  
(051002-01-050)

**Geography.** The Leatherwood Creek watershed covers the southern end of Perry County. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

**Waterways.** Leatherwood Creek empties into the North Fork Kentucky River west of Cornettsville. Among the creeks that feed it are Oldhouse Branch, Clover Fork, Beech Fork, and Little Leatherwood Creek.

**Land and water use.** Land in the watershed is nearly all rural and wooded. One school holds a permit for discharge into the creek. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segment in this watershed fully supports its designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 50 square miles. Part of source water protection zone 3 for the Hazard water system. Watershed is in PRIDE service region. PRIDE identified 12 straight pipes or failing septic systems in the watershed.
Geography. The Maces Creek watershed is in southern Perry County. The land is in the Eastern Kentucky Coal Field physiographic region, which is characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

Waterways. The three forks of Maces Creek (Right, Middle, and Left) empty into the North Fork Kentucky River at Viper. Among the creeks that feed it are Stratton Branch, Lick Branch, and Wicks Branch.

Land and water use. Land in the watershed is nearly all rural and wooded. One school holds a permit for discharge into the creek. See the 2000 Assessment Report for full details.

Agency data assessment. The assessed creek segment in this watershed fully supports its designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.


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Watershed Highlights

Watershed covers 27 square miles.
Part of source water protection zone 3 for the Hazard water system.
Watershed is in PRIDE service region. PRIDE identified 4 straight pipes or failing septic systems in the watershed.

LEGEND

- Area of this watershed
- Sewage plants
  - Public water supplies
  - Other water withdrawals
- Locks & dams
- Cities and towns
- Rivers and larger streams
- Smaller streams
- County borders

North Fork Region

See the color map of this region on p. 119.
Carr Fork watershed (051002-01-070)

Geography. The Carr Fork watershed covers southern Knott County and east central Perry County, with a corner of Letcher County. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

Waterways. Carr Fork empties into the North Fork Kentucky River to the south of Hazard (junction of Rte. 7 and Rte. 15). Among the creeks that feed it are Little Carr Fork, Montgomery Creek, Reynolds Branch, and Yellow Creek.

Land and water use. Land in the watershed is nearly all rural and wooded. The surface waters of the watershed supply the drinking water for Carr Creek State Resort Park. Eight businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

Agency data assessment. The assessed waterways in this watershed include one (Carr Fork Lake) that only partially supports some or all of its designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Framework Mobilization Category: IV
Watershed Highlights

Watershed covers 86 square miles.
Part of source water protection zones 2 and 3 for Hazard’s water system.
Vicco discharges treated sewage into the watershed.
Covered by TMDL program’s North Fork pathogen report.
Carr Fork Lake only partially supports aquatic life [2000 305(b)] and secondary contact recreation [boating and fishing; 1996 303(d) and 2000 305(b)] because of suspended sediment, organic enrichment, and low oxygen. Watershed is in PRIDE service region. PRIDE identified 86 straight pipes or failing septic systems in the watershed.
Lotts Creek watershed (051002-01-080)

Geography. The Lotts Creek watershed straddles the boundary between central Knott and Perry Counties. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

Waterways. Lotts Creek empties into the North Fork Kentucky River north of Hazard. Among the creeks that feed it are Youngs Branch, Elk Fork, Trace Branch, and Darb Fork. Upper Second Creek is also included in this watershed.

Land and water use. Land in the watershed is nearly all rural and wooded. Five businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

Agency data assessment. The assessed creek segments in this watershed include one that only partially supports some or all of its designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 34 square miles. Aquatic life in Lotts Creek is partially impaired by stream modification and sedimentation between Trace Fork and Elk Fork (2nd priority TMDL 2002). In 2000, the geometric mean of 3 fecal coliform samples taken by Watershed Watch from Lotts Creek at the 550 bridge exceeded 2,500 col/100 mls. Watershed is in PRIDE service region. PRIDE identified 126 straight pipes or failing septic systems in the watershed.

LEGEND

Area of this watershed
Sewage plants
Public water supplies
Other water withdrawals
Locks & dams
Cities and towns
Rivers and larger streams
Smaller streams
County borders

See the color map of this region on p. 119.
**Big Creek watershed (051002-01-090)**

**Geography.** The Big Creek watershed lies in west-central Perry County. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

**Waterways.** Big Creek empties into the North Fork Kentucky River between Combs and Typo (near the Daniel Boone Parkway). Among the creeks that feed it are Curly Fork, Browns Fork, and Right Fork Big Creek.

**Land and water use.** Land in the watershed is nearly all rural and wooded. One school holds a permit for discharge into the creeks. See the 2000 Assessment Report for full details.

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

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Watershed Highlights

Watershed covers 19 square miles. Watershed is in PRIDE service region. PRIDE identified 2 straight pipes or failing septic systems in the watershed.
North Fork Kentucky River watershed near Chavies (051002-01-100)

**Geography.** The North Fork Kentucky River watershed near Chavies covers parts of northern Perry County and southern Breathitt County. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

**Waterways.** This watershed includes the section of the North Fork between the mouth of Big Creek (between Combs and Typo at the Daniel Boone Parkway) and the mouth of Troublesome Creek at Haddix. Among many creeks that feed it within this watershed are Big Willard Creek, Hurricane Branch, Campbell Creek, First Creek, Caney Creek, and Georges Branch. Water also flows into this watershed from the watersheds of North Fork near Hazard, Big Creek, and Grapevine Creek.

**Land and water use.** Land in the watershed is nearly all rural and wooded. Nine businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segment in this watershed does not support some or all of its designated uses, based on biological and/or water-quality data. A variety of activities contribute to the impairment of this stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 94 square miles. Part of source water protection zones 2 and 3 for Jackson’s water system.

Covered by TMDL program’s North Fork pathogen report. Aquatic life impaired by flow alteration and sedimentation in the entire length (4.5 miles) of Big Willard Creek (1st priority TMDL 2002).

Watershed is in PRIDE service region. PRIDE identified 33 straight pipes or failing septic systems in the watershed.

LEGEND

Area of this watershed

Sewage plants

Public water supplies

Other water withdrawals

Locks & dams

Cities and towns

Rivers and larger streams

Smaller streams

County borders

North Fork Region

See the color map of this region on p. 119.
Grapevine Creek watershed  
(051002-01-110)

Geography. The Grapevine Creek watershed is in northern Perry County. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

Waterways. Grapevine Creek empties into the North Fork Kentucky River north of Chavies. Among the creeks that feed it are Combs Branch, Spencer Creek, Clear Fork, Mudlick Branch, Wiley Miller Branch, Trace Branch, and Haddock Fork.

Land and water use. Land in the watershed is nearly all rural and wooded. Seven businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

Agency data assessment. Grapevine Creek does not support some or all of its designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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<th>Watershed Restoration Ranking</th>
<th>Watershed Protection Rank</th>
<th>Overall Watershed Rank</th>
<th>Framework Mobilization Category</th>
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</table>
Watershed Highlights

Watershed covers 14 square miles. Aquatic life in Grapevine Creek is impaired by sedimentation and flow alteration, from its mouth to Combs Branch (1st priority TMDL 2002). Watershed is in PRIDE service region.

LEGEND

Area of this watershed

Sewage plants

Public water supplies

Other water withdrawals

Locks & dams

Cities and towns

Rivers and larger streams

Smaller streams

County borders

See the color map of this region on p. 119.
Troublesome Creek watershed
(051002-01-120)

Geography. The Troublesome Creek watershed covers northeastern Perry, central Knott, and southeastern Breathitt Counties. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

Waterways. Troublesome Creek empties into the North Fork Kentucky River at Haddix. Among the creeks that feed it are Lost Creek, Buckhorn Creek, and Balls Fork.

Land and water use. Land in the watershed is mainly rural and wooded. Groundwater in the watershed supplies the drinking water for the municipal system in Hindman. Twenty businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

Agency data assessment. The twelve assessed creek segments in this watershed include five that do not support some or all of their designated uses, based on biological and/or water-quality data. Pathogens, siltation, and salinity from a variety of sources contribute to the impairment of these streams. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.


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<td>Potential Impacts</td>
<td>Combined Rank</td>
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Watershed Highlights

Watershed covers 246 square miles.
Part of source water protection zones 2 and 3 for Jackson’s water system.
Hindman discharges treated sewage into the watershed.
  Plant has not always met limits.
Recent EPA grants to Hindman and Knott County will fund construction of a new regional sewer system.
Pathogens make contact recreation unsafe along length of Troublesome Creek [1998 303(d) and 2000 305(b)].
Watershed Watch focused sampling showed high fecal coliform readings in Lost Creek and Troublesome Creek.
Covered by TMDL program’s North Fork pathogen report.
Aquatic life is impaired or partially impaired in parts of Balls Fk., Buckhorn Cr., Long Fk., and Lost Cr., and is threatened in part of Troublesome Cr. [2000 305(b)].
Water supply is an issue.
Watershed is in the PRIDE region. PRIDE identified 189 straight pipes or failing septic systems in the watershed.

See the color map of this region on p. 121.
South Fork of Quicksand Creek watershed
(051002-01-130)

**Geography.** The South Fork of Quicksand Creek watershed is in eastern Breathitt County. The land is in the Eastern Kentucky Coal Field physiographic region, which is characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

**Waterways.** The South Fork of Quicksand Creek empties into Quicksand Creek just above its confluence with the North Fork Kentucky River close to Quicksand. Among the creeks that feed the South Fork of Quicksand are Smith Branch, Dumb Betty Branch, Spicewood Branch, and Twomile Fork.

**Land and water use.** Land in the watershed is mainly rural and wooded. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segment in this watershed only partially supports its designated uses, based on biological and/or water-quality data. Siltation contributes to the impairment of the stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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184
Watershed Highlights

Watershed covers 40 square miles.
Part of source water protection zones 1, 2, and 3 for the Jackson water system.
Covered by TMDL program’s North Fork pathogen report.
Aquatic life partially impaired by sedimentation in South Fork Quicksand between Press Howard Fork and Quicksand Creek (2nd priority TMDL 2002).
Watershed is in PRIDE service region. PRIDE identified 1 straight pipe in the watershed.
Quicksand Creek watershed
(051002-01-140)

**Geography.** The Quicksand Creek watershed is in northeast Breathitt County and northern Knott County. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

**Waterways.** Quicksand Creek empties into the North Fork Kentucky River close to Quicksand. Among the creeks that feed it are Big Caney Creek, Hunting Fork, Hawes Fork, Spring Fork, and Laurel Fork.

**Land and water use.** Land in the watershed is mainly rural and wooded. Three businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The seven assessed creek segments in this watershed include four that do not support some or all of their designated uses, based on biological and/or water-quality data. One is threatened. A variety of activities contribute to the impairment of these streams. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 163 square miles.
Part of source water protection zones 1, 2, and 3 for the Jackson water system.
Covered by TMDL program’s North Fork pathogen report.
Aquatic life impaired by sedimentation in Quicksand Creek between Big Caney Creek and Spring Fork (1st priority TMDL 2002).
Aquatic life in Spring Fork, Hawes Fork, and Hunting Creek is also impaired by sedimentation and by flow alteration (1st priority TMDL 2002).
Aquatic life in a section of Big Caney Creek is classified as threatened [2000 305(b)].
Watershed Watch focused sampling showed high fecal coliform readings in Quicksand Creek.
Watershed is in PRIDE service region. PRIDE identified 5 straight pipes or failing septic systems in the watershed.

LEGEND

Area of this watershed

Sewage plants

Public water supplies

Other water withdrawals

Locks & dams

Cities and towns

Rivers and larger streams

Smaller streams

County borders

North Fork Region

See the color map of this region on p. 121.
North Fork Kentucky River mouth watershed (051002-01-150)

**Geography.** The North Fork Kentucky River mouth watershed lies in northwest Breathitt County, a southern corner of Wolfe County, and eastern Lee County. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of groundwater drainage. The watershed is underlain by coals, sandstones, and shales: this geology is generally conducive to productive wells, but water quality may be low for wells that draw from coal layers. Parts of the watershed lie over sandstone aquifers.

**Waterways.** This watershed includes the section of the North Fork between the mouth of Troublesome Creek (at Haddix) and Beattyville. Among many creeks that feed it within this watershed are Miller Branch, Mill Creek, War Creek, Big Bloody Creek, Cave Branch, Laurel Branch, and Blaines Branch. Water also flows into this watershed from the following other watersheds: North Fork Kentucky River near Chavies, Middle Fork Kentucky River mouth, South Fork of Quick-sand, Quicksand Creek, Cane Creek in Breathitt County, Frozen Creek, Boone Fork, Holly Creek, Upper Devil Creek, Lower Devil Creek, Hell Creek & Walker Creek, and Crystal Creek.

**Land and water use.** Land in the watershed is largely rural and wooded but about 10% agricultural. The surface waters of the watershed supply the drinking water for municipal systems in Beattyville and Jackson. Five businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** Four waterway segments were assessed in this watershed, and two do not support some of their designated uses, based on biological and/or water-quality data. One segment of the North Fork is impaired by bacteria from animal and human wastes. Panbowl Lake exhibited low oxygen and organic enrichment. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.


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<td>Combined Rank: High</td>
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</table>
Watershed Highlights

Watershed covers 83 square miles.
Provides drinking water for Jackson and Beattyville.
Jackson discharges treated sewage into the watershed.
Aquatic life in Panbowl Lake is impaired by organic enrichment and low oxygen [2000 305(b)].
Pathogens make contact recreation unsafe from Quicksand Creek to Jackson sewage plant [2000 305(b)].
Watershed Watch focused sampling showed high fecal coliform readings in the North Fork and near the mouths of tributary watersheds.
Covered by TMDL program’s North Fork pathogen report.
Water supply is an issue.
Watershed is in PRIDE service region. PRIDE identified 64 straight pipes or failing septic systems in the watershed.

See the color map of this region on p. 121.
Cane Creek watershed in Breathitt County (051002-01-160)

**Geography.** The Cane Creek watershed in Breathitt County is in the central part of Breathitt County. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

**Waterways.** Cane Creek empties into the North Fork Kentucky River west of Jackson. Among the creeks that feed it are Haddix Fork, Belcher Fork, Miller Branch, and Town Branch.

**Land and water use.** Land in the watershed is rural and wooded. One organization holds a permit for discharge into the creek. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segment in this watershed fully supports its designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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</table>
Watershed Highlights

Watershed covers 21 square miles. Covered by TMDL program’s North Fork pathogen report. Water supply is an issue. Watershed Watch focused sampling showed high fecal coliform readings at two sites at the lower end of the watershed. Watershed is in PRIDE service region. PRIDE identified 22 straight pipes or failing septic systems in the watershed.

See the color map of this region on p. 121.
Frozen Creek watershed (051002-01-170)

**Geography.** The Frozen Creek watershed lies along the northern edge of Breathitt County. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

**Waterways.** Frozen Creek empties into the North Fork Kentucky River north of Jackson. Among the creeks that feed it are Cope Fork and Clear Fork.

**Land and water use.** Land in the watershed is rural and wooded. No businesses or organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed include one (Cope Fork) that only partially supports its designated uses, based on biological and/or water-quality data. Siltation contributes to the impairment of the stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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<td><strong>Potential Impacts</strong></td>
<td><strong>Combined Rank</strong></td>
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</table>
Watershed Highlights

Watershed covers 40 square miles. Aquatic life partially impaired by sedimentation and habitat alteration in Cope Fork between its mouth and Cockrill Creek (2nd priority TMDL 2002). Watershed Watch focused sampling showed high fecal coliform readings in the watershed. Watershed is in PRIDE service region.
Boone Fork watershed (051002-01-180)

**Geography.** The Boone Fork watershed lies along the northern edge of Breathitt County. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

**Waterways.** Boone Fork empties into Frozen Creek a short distance above its confluence with the North Fork Kentucky River north of Jackson. Among the creeks that feed Boone Fork are Hurst Fork, Johnson Fork, Polecate Branch, and Peggs Fork.

**Land and water use.** Land in the watershed is rural and wooded. No businesses or organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The Division of Water categorizes Boone Fork as threatened, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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<tr>
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<td>Medium</td>
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</table>
Watershed Highlights

Watershed covers 15 square miles. Aquatic life in Boone Fork is classified as threatened [2000 305(b)]. Watershed is in PRIDE service region. PRIDE identified 1 straight pipe in the watershed.
Holly Creek watershed (051002-01-190)

**Geography.** The Holly Creek watershed is in southern Wolfe County. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

**Waterways.** Holly Creek empties into the North Fork Kentucky River close to Pence. Among the creeks that feed it are Kelse Holland Fork, Terrell Fork, Spring Branch, Hunting Fork, and Pence Branch.

**Land and water use.** Land in the watershed is mainly rural and wooded, but about 10% is agricultural. No businesses or organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segment only partially supports its designated uses, based on biological and/or water-quality data. Habitat alteration contributes to the impairment of the stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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<td>Medium</td>
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<td>Medium</td>
<td>IV</td>
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</table>
Watershed Highlights

Watershed covers 19 square miles. Minor part of source water protection zone 3 for Beattyville’s water system. Aquatic life partially impaired by habitat alteration in Holly Creek from mouth to confluence with Mandy Holland Fork and Terrell Fork (2nd priority TMDL 2002). Watershed is in PRIDE service region.
Upper Devil Creek watershed
(051002-01-200)

**Geography.** The Upper Devil Creek watershed is in southern Wolfe 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.** Upper Devil Creek empties into the North Fork Kentucky River close to the Wolfe-Lee boundary west of Flat. Among the creeks that feed it are Bear Pen Creek, Right Fork, and Left Fork Upper Devil Creek.

**Land and water use.** Land in the watershed is mainly rural and wooded, but about 10% is agricultural. No businesses or organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segment only partially supports its designated uses, based on biological and/or water-quality data. Habitat alteration contributes to the impairment of the stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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</table>
Watershed Highlights

Watershed covers 17 square miles.
Part of source water protection zone 3 for the Beattyville water system.
Aquatic life impaired by habitat alteration in Upper Devil Creek between its mouth and Right Fork (2nd priority TMDL 2002).
Watershed is in PRIDE service region.

LEGEND
Area of this watershed
Sewage plants
Public water supplies
Other water withdrawals
Locks & dams
Cities and towns
Rivers and larger streams
Smaller streams
County borders

WOLFE
Campton
Vortex
Lee
Lower Devil Creek watershed  
(051002-01-210)

**Geography.** The Lower Devil Creek watershed is in southern Wolfe County and extends into 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.

**Land and water use.** Land in the watershed is mainly rural and wooded, but about 10% is agricultural. No businesses or organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The Division of Water categorizes Lower Devil Creek as threatened, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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</table>
Watershed Highlights

Watershed covers 18 square miles.
Part of source water protection zone 3 for the Beattyville water system.
Lower Devil Creek is classified as threatened from its mouth to the confluence with Middle Fork of Lower Devil Creek [2000 305(b)]. Watershed is in PRIDE service region.

See the color map of this region on p. 121.
Hell Creek & Walker Creek watershed (051002-01-220)

**Geography.** The Hell Creek & Walker Creek watershed is in northern Lee County and extends into southern Wolfe County. The land is in the plateau area of the Eastern Kentucky Coal Field physiographic region, which is 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 is over sandstone aquifers.

**Waterways.** Walker Creek empties into the North Fork Kentucky River just west of Airedale, and Hell Creek empties into the North Fork just west of Walker Creek. Among the creeks that feed Walker Creek are Hell for Certain Creek and Huff Cave Branch. Bowman Fork feeds into Hell Creek.

**Land and water use.** Land in the watershed is mainly rural and wooded, but about 10% is agricultural. Two businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed segment of Walker Creek fully supports its designated uses, and the assessed segment of Hell Creek only partially supports its designated uses, based on biological and/or water-quality data. Habitat alterations contribute to the impairment of the stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 22 square miles.
Part of source water protection zones 1, 2, and 3 for the Beattyville water system.
Aquatic life partially impaired by habitat alteration in Hell Creek from its mouth to Bowman Fork (2nd priority TMDL 2002).
The potential for agricultural erosion is substantially higher than the basin average.
Watershed is in PRIDE service region. PRIDE identified 2 straight pipes or failing septic systems in the watershed.

See the color map of this region on p. 121.
**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, which is 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 the 2000 Assessment Report for full details.

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

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</table>
Watershed Highlights

Watershed covers 8 square miles. The potential for agricultural erosion is substantially higher than the basin average. Watershed is in PRIDE service region. PRIDE identified 1 failing septic system in the watershed.

See the color map of this region on p. 121.
Middle Fork Region
Middle Fork Kentucky River headwaters watershed (051002-02-010)

Geography. The Middle Fork Kentucky River headwaters watershed occupies much of central Leslie County and the northern edge of Harlan County. The land is in the Eastern Kentucky Coal Field physiographic region, which is characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

Waterways. The Middle Fork Kentucky River headwaters watershed includes the Middle Fork up to its confluence with Cutshin Creek at Dryhill (near the Boone Parkway). Among the other creeks that feed the river in this watershed are Greasy Creek, Beech Fork, Stinnett Creek, Rockhouse Creek, and Bull Creek.

Land and water use. Land in the watershed is rural and wooded. The surface waters of the watershed supply the drinking water for the Green Hills and Hyden Leslie County Water Districts. Nineteen businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

Agency data assessment. The assessed creek segments in this watershed fully support their designated uses, based on biological and/or water-quality data. One segment of Greasy Creek is designated as threatened. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.


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Watershed Highlights

Watershed covers 243 square miles. Provides drinking water for Hyden. Hyden discharges treated sewage into the watershed. Hyden is completing plans for sewer regionalization to eliminate five package plants and several straight pipes or failing septic systems. Water supply is an issue. Greasy Creek is classified as threatened between Laurel Fork and Big Laurel Creek [2000 305(b)]. DOW and EPA have agreed to delist the segments of the Middle Fork designated as impaired on the 1996 and 1998 303(d) lists. DOW has designated the Middle Fork and Exceptional Water. The Greasy Creek subwatershed is a Watershed Watch Citizen Action Plan watershed. Watershed is in the PRIDE region. PRIDE identified 322 straight pipes or failing septic systems in the watershed.

LEGEND

Area of this watershed

Sewage plants

Public water supplies

Other water withdrawals

Locks & dams

Cities and towns

Rivers and larger streams

Smaller streams

County borders

See the color map of this region on p. 123.
Cutshin Creek watershed (051002-02-020)

**Geography.** The Cutshin Creek watershed covers eastern Leslie County. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

**Waterways.** Cutshin Creek empties into the Middle Fork Kentucky River at the town of Dryhill (near the Boone Parkway). Among the creeks that feed it are Polls Creek, Wolf Creek, Raccoon Creek, Wooton Creek, and MacIntosh Creek.

**Land and water use.** Land in the watershed is rural and wooded. Ten businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed include one (Wooton Creek) that only partially supports its designated uses, based on biological and/or water-quality data. Polls Creek is categorized as threatened. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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210
Watershed Highlights

Watershed covers 92 square miles.
Local data indicates fecal contamination of Cutshin Creek. Aquatic life partially impaired by unknown causes in Wooton Creek between its mouth and second fork (2nd priority TMDL 2002).
Aquatic life is classified as threatened in Polls Creek [2000 305(b)].
The potential for agricultural erosion is substantially higher than the basin average.
Watershed is in PRIDE service region. PRIDE identified 88 straight pipes or failing septic systems in the watershed.

LEGEND
Area of this watershed
Sewage plants
Public water supplies
Other water withdrawals
Locks & dams
Cities and towns
Rivers and larger streams
Smaller streams
County borders

Watershed Summaries

See the color map of this region on p. 123.
Middle Fork Kentucky River watershed near Buckhorn Lake (051002-02-030)

**Geography.** The Middle Fork Kentucky River watershed near Buckhorn Lake covers northern Leslie County and northwestern Perry County. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

**Waterways.** This watershed includes the section of the Middle Fork between Cutshin Creek and Buckhorn, including Buckhorn Lake. Among the creeks that feed it are Hell for Certain Creek, Grassy Branch, Elkhorn Creek, Rush Creek, Leatherwood Creek, Otter Creek, and Gays Creek. Water from the Middle Fork Kentucky River headwaters watershed and the Cutshin Creek watershed also flows into this watershed.

**Land and water use.** Land in the watershed is rural and wooded. The surface waters of the watershed supply the drinking water for Buckhorn Lake State Park. The park holds two permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The three assessed segments in this watershed include one, Buckhorn Lake, that only partially supports its designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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212
Watershed Highlights

Watershed covers 73 square miles.
Provides drinking water for Buckhorn Lake State Park.
Buckhorn Lake only partially supports secondary contact recreation [such as boating; 1996 303(d)].
Aquatic life in Buckhorn Lake is partially impaired by overenrichment [2000 305(b)].
Watershed is in PRIDE service region.

LEGEND

- Area of this watershed
- Sewage plants
- Public water supplies
- Other water withdrawals
- Locks & dams
- Cities and towns
- Rivers and larger streams
- Smaller streams
- County borders

See the color map of this region on p. 123.
Middle Fork Kentucky River mouth watershed (051002-02-040)

Geography. The Middle Fork Kentucky River mouth watershed extends from northwest Perry County across western Breathitt County into southeastern Lee County. The southern part of the watershed is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid rates of surface runoff, and moderate rates of groundwater drainage. The northern part of the watershed is in the plateau area of the coal field region, characterized by rolling terrain, medium to rapid rates of surface runoff, and slow to medium 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. Unconsolidated silts, sands, and gravels occur along the flood plain of the river in Lee County.

Waterways. This watershed includes the section of the Middle Fork between Buckhorn Lake and the confluence with the North Fork east of Beattyville. Among the creeks that feed it are Squabble Creek, Puncheon Camp Creek, Upper Twin Creek, and Long Shoal Branch. Water from the Freeman Fork and Middle Fork Kentucky River near Buckhorn Lake watersheds also flows into this watershed.

Land and water use. Land in the watershed is rural and wooded, with less than 10% agricultural use. Four businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

Agency data assessment. The assessed creek segments in this watershed include one (Upper Twin Creek) that only partially supports its designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

Watershed Highlights

Watershed covers 136 square miles.
Part of source water protection zones 1, 2, and 3 for the Beattyville water system.
Aquatic life partially impaired by unknown causes in Upper Twin Creek from its mouth to Keen Fork (2nd priority TMDL 2002).
Watershed is in PRIDE service region. PRIDE identified 35 straight pipes or failing septic systems in the watershed.

See the color map of this region on p. 123.
Freeman Fork watershed (051002-02-050)

**Geography.** The Freeman Fork watershed occupies the far southwest corner of Breathitt County. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

**Waterways.** Freeman Fork empties into the Middle Fork Kentucky River south of Crocketsville. Among the creeks that feed it are Miller Branch, Long Fork, Burton Fork, and Terry Branch.

**Land and water use.** Land in the watershed is rural and wooded. No businesses or organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segment in this watershed fully supports its designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 15 square miles. Watershed is in PRIDE service region.
South Fork Region
Red Bird River watershed (051002-03-010)

**Geography.** The Red Bird River watershed covers eastern Clay County, western Leslie County, and the northeast corner of Bell County. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

**Waterways.** The Red Bird River joins Bullskin Creek and Goose Creek close to Oneida to form the South Fork Kentucky River. Among the creeks that feed it are Red Bird Creek, Phillips Fork, Upper Jacks Creek, Bowen Creek, Flat Creek, Big Creek, Elk Creek, Ulysses Creek, Hector Branch, Jacks Creek, and Bear Creek.

**Land and water use.** Land in the watershed is mainly rural and wooded. Five businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed include a segment of the Red Bird River that does not support some or all of its designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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220
Watershed Highlights

Watershed covers 196 square miles.
Pathogens make contact recreation unsafe in the Redbird River between Goose Creek and Big Creek (1st priority TMDL 2002).
The potential for agricultural erosion is substantially higher than the basin average.
USFS has targeted this watershed for closure of illegal trails to off-road vehicles and for improvement of off-road vehicle routes that are eroding.
Watershed is in PRIDE service region. PRIDE identified 302 straight pipes or failing septic systems in the watershed.

LEGEND

Area of this watershed

Sewage plants

Public water supplies

Other water withdrawals

Locks & dams

Cities and towns

Rivers and larger streams

Smaller streams

County borders

See the color map of this region on p. 125.
South Fork Kentucky River watershed in Boone Forest (051002-03-020)

**Geography.** The South Fork Kentucky River watershed in Boone Forest occupies northeast Clay County, and southern Owsley County. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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. Unconsolidated silts, sands, and gravels occur along the flood plain of the river.

**Waterways.** The South Fork Kentucky River upper watershed includes the section from Oneida to just south of Booneville (approximately that portion of the river that flows through the Daniel Boone National Forest). Among the creeks that feed it are Crane Creek, Right Fork Buffalo Creek, Left Fork Island Creek, Lower Island Creek, Indian Creek, White Oak Creek, and Cow Creek. Water from the Goose Creek, Red Bird River, Bullskin Creek, and Sexton Creek watersheds also flows into this watershed.

**Land and water use.** Land in the watershed is mainly rural and wooded; about 5% is agricultural. One school holds a permit for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed include one that only partially supports its designated uses, based on biological and/or water-quality data. Siltation and exotic species contribute to the impairment of the stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.


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222
Watershed Highlights

Watershed covers 130 square miles. Part of source water protection zones 1, 2, and 3 for the Booneville water system. Aquatic life partially impaired by sedimentation in Left Fork Island Creek from its mouth to Holly Fork (2nd priority TMDL 2002). Watershed is in PRIDE service region. PRIDE identified 103 straight pipes or failing septic systems in the watershed.

See the color map of this region on p. 125.
Bullskin Creek watershed (051002-03-030)

**Geography.** The Bullskin Creek watershed lies in northeast Clay County and a corner of Leslie County. The land is in the Eastern Kentucky Coal Field physio-graphic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

**Waterways.** Bullskin Creek empties into the South Fork Kentucky River close to Oneida. Among the creeks that feed it are Little Bullskin Creek, Meadow Branch, Barger Branch, Wiles Branch, and Long Branch.

**Land and water use.** Land in the watershed is rural and wooded. No businesses or organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed fully support their designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 29 square miles.
The potential for agricultural erosion is substantially higher than the basin average.
USFS has targeted this watershed for closure of illegal trails to off-road vehicles and for improvement of off-road vehicle routes that are eroding.
Watershed is in PRIDE service region. PRIDE identified 60 straight pipes or failing septic systems in the watershed.

LEGEND

Area of this watershed

Sewage plants

Public water supplies

Other water withdrawals

Locks & dams

Cities and towns

Rivers and larger streams

Smaller streams

County borders
Goose Creek watershed (051002-03-040)

**Geography.** The Goose Creek watershed covers southwest Clay County, northern Knox County, and slivers of Laurel County. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

**Waterways.** Goose Creek empties into the South Fork Kentucky River close to Oneida. Among the creeks that feed it are Bull Creek, Collins Fork, Hammons Fork, Horse Creek, Laurel Creek, Paces Creek, and Little Goose Creek.

**Land and water use.** Land in the watershed is mainly rural and wooded; less than 10% is agricultural. The surface waters of the watershed supply the drinking water for the municipal system in Manchester. Eleven businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed include several that only partially support their designated uses, based on biological and/or water-quality data. Siltation and pathogens contribute to the impairment of these streams. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 260 square miles. Provides drinking water for Manchester. Manchester discharges treated sewage into the watershed. Pathogens partially impair contact recreation in Goose Creek between Red Bird River and Laurel Creek (2nd priority TMDL 2002). Aquatic life partially impaired by sedimentation in Bull Creek, Collins Fork, Hammons Fork, and Horse Creek (2nd priority TMDL 2002). Hammons Fork and Laurel Creek are partially impaired by overenrichment (2nd priority TMDL 2002). DOW plans to delist a stretch of Laurel Creek that was listed as impaired in 1996 and 1998, because sewage plants there have made important improvements. Water supply is an issue. Watershed is in the PRIDE region. PRIDE identified 1,001 straight pipes or failing septic systems in the watershed.

LEGEND

Area of this watershed

Sewage plants

Public water supplies

Other water withdrawals

Locks & dams

Cities and towns

Rivers and larger streams

Smaller streams

County borders

See the color map of this region on p. 125.
Sexton Creek watershed (051002-03-050)

**Geography.** The Sexton Creek watershed occupies northwest Clay County, and extends into Jackson and Owsley Counties. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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.

**Waterways.** Sexton Creek empties into the South Fork Kentucky River at Taft. Among the creeks that feed it are Robinson Creek, Bray Creek, Ellis Branch, Cradlebow Branch, and Little Sexton Creek.

**Land and water use.** Land in the watershed is mainly rural and wooded; about 10% is agricultural. One business holds permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed include a segment of Sexton Creek that only partially supports its designated uses, based on biological and/or water-quality data. Acidity (pH) contributes to the impairment of the stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 71 square miles.
Part of source water protection zone 3 for the Booneville water system.
Aquatic life partially impaired by sedimentation and low pH in Sexton Creek between Little Sexton Creek and Bray Creek (2nd priority TMDL 2002).
Watershed is in PRIDE service region. PRIDE identified 180 straight pipes or failing septic systems in the watershed.

LEGEND

Area of this watershed
Sewage plants
Public water supplies
Other water withdrawals
Locks & dams
Cities and towns
Rivers and larger streams
Smaller streams
County borders

See the color map of this region on p. 125.
South Fork Kentucky River mouth watershed (051002-03-060)

_Geography._ The South Fork Kentucky River mouth watershed covers north-central Owsley County and south-central Lee County. The land is in the plateau area of the Eastern Kentucky Coal Field physiographic region, which is 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. Unconsolidated silts, sands, and gravels occur along the flood plain of the river.

_Waterways._ This watershed includes the section of the South Fork between the National Forest and Beattyville, where the South Fork empties into the Kentucky River. Among the creeks that feed it are Betty Bowman Creek, Buck Creek, Fish Creek, Jerushia Branch, Caney Fork, Straight Fork, and Pawpaw Creek. Water from the Meadow Creek and South Fork Kentucky River in Boone Forest watersheds also flows into this watershed.

_Land and water use._ Land in the watershed is about one-fourth agricultural and three-fourths rural and wooded. The surface waters of the watershed supply the drinking water for the municipal system in Booneville. Ten businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

_Agency data assessment._ The assessed creek segments in this watershed include one segment of Lower Buffalo Creek that only partially supports its designated uses, based on biological and/or water-quality data. Siltation contributes to the impairment of the stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 45 square miles.
Provides drinking water for Booneville.
Booneville discharges treated sewage into the watershed.
Aquatic life partially impaired by sedimentation in Lower Buffalo Creek from its mouth to Caney Fork and Straight Fork (2nd priority TMDL 2002).
Water supply is an issue.
The potential for agricultural erosion is substantially higher than the basin average.
Watershed is in PRIDE service region. PRIDE identified 3 straight pipes or failing septic systems in the watershed.

See the color map of this region on p. 125.
Meadow Creek watershed (051002-03-070)

Geography. The Meadow Creek watershed is in Owsley County. The higher part of the watershed is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid rates of surface runoff, and moderate rates of groundwater drainage. The lower part of the watershed is in the plateau area of the coal field region, characterized by rolling terrain, medium to rapid rates of surface runoff, and slow to medium 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.

Waterways. Meadow Creek empties into the South Fork Kentucky River in Boonesville. Among the creeks that feed it are Split Poplar Fork, Poletown Fork, Rose Fork, Spencer Fork, Moore Fork, Wilson Fork, Sugar Camp Creek, and Zeke Branch.

Land and water use. Land in the watershed is mainly rural and wooded; less than 10% is agricultural. No businesses or organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

Agency data assessment. The assessed segment of Meadow Creek only partially supports its designated uses, based on biological and/or water-quality data. Sedimentation contributes to the impairment of the stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.


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Watershed Highlights

Watershed covers 17 square miles. Sedimentation partially impairs aquatic life in Meadow Creek between South Fork Kentucky River and Poletown and Spencer Forks (2nd priority TMDL 2002). Watershed is in PRIDE service region. PRIDE identified 113 straight pipes or failing septic systems in the watershed.

See the color map of this region on p. 125.
Mid-Kentucky River Region
Kentucky River watershed above Heidelberg (051002-04-010)

**Geography.** The Kentucky River watershed above Heidelberg occupies central Lee County. The land is in the escarpment area of the Eastern Kentucky Coal Field physiographic region, characterized by hilly terrain, very rapid surface runoff, and moderate rates of 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.

**Waterways.** This watershed includes the Kentucky River from Beattyville west to the mouth of Sturgeon Creek at Heidelberg. Among the creeks that feed it are Contrary Creek and Mikes Branch. Water from the North Fork Kentucky River mouth and South Fork Kentucky River mouth watersheds also flows into this watershed.

**Land and water use.** Land in the watershed is mainly rural and wooded; about 10% is agricultural. The Beattyville sewage treatment plant holds a permit for discharges into the creek. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed fully support all of their designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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236
Watershed Highlights

Watershed covers 18 square miles. Beattyville discharges treated sewage into the watershed. Groundwater is substantially more sensitive than the basin average. The potential for agricultural erosion is substantially higher than the basin average. Watershed is in PRIDE service region. PRIDE identified 4 straight pipes or failing septic systems in the watershed.

See the color map of this region on p. 127.
**Sturgeon Creek watershed (051002-04-020)**

**Geography.** The Sturgeon Creek watershed covers portions of eastern Jackson County, western Owsley County, and southern Lee County. The land is in the escarpment and plateau areas of the Eastern Kentucky Coal Field physiographic region, characterized by rolling to hilly terrain, medium to very rapid surface runoff, and slow to medium 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 easily weathered clay shales that store water but allow little groundwater flow.

**Waterways.** Sturgeon Creek empties into the Kentucky River at Heidelberg. Among the creeks that feed it are Herd Fork, Brushy Creek, Wild Dog Creek, Granny Dismal Creek, Upper Sinking Creek, Grassy Fork, Rowlette Branch, Little Sturgeon Creek, Elk Lick, and Duck Branch.

**Land and water use.** Land in the watershed is three-fourths rural and wooded and about 20% agricultural. No businesses or organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed fully support their designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 111 square miles. Watershed is in PRIDE service region. PRIDE identified 46 straight pipes or failing septic systems in the watershed.

See the color map of this region on p. 127.
**Kentucky River watershed above Ravenna (051002-04-030)**

**Geography.** The Kentucky River watershed above Ravenna straddles the southern end of the boundary between Lee County and Estill County. The land is in the escarpment area of the Eastern Kentucky Coal Field physiographic region, which is characterized by hilly terrain, very rapid surface runoff, and moderate rates of 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 easily weathered clay shales that store water but allow little groundwater flow. Other parts of the watershed lie above interbedded clay shales and siltstones.

**Waterways.** This watershed includes the Kentucky River between Sturgeon Creek (Heidelberg) and Station Camp Creek (Irvine). Among the creeks that feed it are Cave Branch, Willow Branch, Ross Creek, Wolf Pen Branch, Buck Lick Branch, Buck Creek, and Big Doe Creek. Water from the Millers Creek, Sturgeon Creek, Cow Creek, and Kentucky River above Heidelberg watersheds also flow into this watershed.

**Land and water use.** Land in the watershed is mainly rural and wooded; about 10% is agricultural. The surface waters of the watershed supply the drinking water for the municipal system in Irvine. Two businesses hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** Assessed creek segments in this watershed fully support their designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 60 square miles.
Part of source water protection zones 1, 2, and 3 for the
Irvine water system.
Groundwater is substantially more sensitive than the basin
average.
The potential for agricultural erosion is substantially higher
than the basin average.
Watershed is in PRIDE service region. PRIDE identified 35
straight pipes or failing septic systems in the watershed.

LEGEND
Area of this watershed
Sewage plants
Public water supplies
Other water withdrawals
Locks & dams
Cities and towns
Rivers and larger streams
Smaller streams
County borders

Mid-Kentucky River

See the color map of
this region on p. 127.
Millers Creek watershed (051002-04-040)

**Geography.** The Millers Creek watershed occupies the eastern tip of Estill County and northern corner of Lee County. The land is in the escarpment area of the Eastern Kentucky Coal Field physiographic region, which is characterized by hilly terrain, very rapid surface runoff, and moderate rates of 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. Some of the watershed lies over sandstone aquifers and some over easily weathered clay shales that store water but allow little groundwater flow. Other parts of the watershed lie above interbedded clay shales and siltstones.

**Waterways.** Millers Creek empties into the Kentucky River between Pryse and the town of Millers Creek. Among the creeks that feed it are Cave Fork, Zachariah Fork, Little Sinking Creek, Billey Fork, Woodward Creek, Furnace Fork, and Sudders Fork.

**Land and water use.** Land in the watershed is more than 80% rural and wooded, about 15% industrial, and about 3% agricultural. Three businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed fully support their designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 75 square miles.  
Part of source water protection zones 2 and 3 for the Irvine water system.  
Groundwater is substantially more sensitive than the basin average.  
This is a Watershed Watch Citizen Action Plan watershed.  
Watershed is in PRIDE service region. PRIDE identified 23 straight pipes or failing septic systems in the watershed.

LEGEND

Area of this watershed  
Sewage plants  
Public water supplies  
Other water withdrawals  
Locks & dams  
Cities and towns  
Rivers and larger streams  
Smaller streams  
County borders
Station Camp Creek watershed  
(051002-04-050)

**Geography.** The Station Camp Creek watershed includes much of the northern section of Jackson County and part of southeastern Estill County, as well as slivers of Rockcastle and Lee counties. The higher, southern section of the watershed is in the escarpment area of the Eastern Coal Field physiographic region, characterized by hilly terrain, very rapid surface runoff, and moderate rates of groundwater drainage. The lower, northern section of the watershed is in the Knobs physiographic region, characterized by hilly terrain, very rapid surface runoff, and very slow groundwater drainage. In level parts of the Knobs, runoff and groundwater drainage are slow. 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. Some of the watershed lies over sandstone aquifers and some over easily weathered clay shales that store water but allow little groundwater flow. Other parts of the watershed lie above interbedded clay shales and siltstones.

**Waterways.** Station Camp Creek empties into the Kentucky River at Irvine. Among the creeks that feed it are Clear Creek, Hoys Fork, Crooked Creek, Hinton Branch, South Fork Station Camp Creek, War Creek, War Fork, and Cavanaugh Creek.

**Land and water use.** Land in the watershed is more than 80% rural and wooded and 15% agricultural. Six businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed include one that only partially supports its designated uses, based on biological and/or water-quality data. Siltation contributes to the impairment of the stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 147 square miles.
Part of source water protection zones 1, 2, and 3 for the Irvine water system.
Groundwater is substantially more sensitive than the basin average.
Station Camp Creek is partially impaired by sedimentation from its mouth to the confluence with Red Lick Creek.
Watershed is in PRIDE service region. PRIDE identified 326 straight pipes or failing septic systems in the watershed.

See the color map of this region on p. 127.
Cow Creek watershed (051002-04-060)

**Geography.** The Cow Creek watershed is located in north-central Estill County. Most of the watershed is in the escarpment area of the Eastern Coal Field physiographic region, which is characterized by hilly terrain, very rapid surface runoff, and moderate rates of groundwater drainage. The lowest, southern section of the watershed is in the Knobs physiographic region, characterized by hilly terrain, very rapid surface runoff, and very slow groundwater drainage. In level parts of the Knobs, runoff and groundwater drainage are slow. 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 easily weathered clay shales that store water but allow little groundwater flow. Other parts of the watershed lie above interbedded clay shales and siltstones.

**Waterways.** Cow Creek empties into the Kentucky River at Ravenna. Among the creeks that feed it are Rogers Fork, Tickey Fork, and Campbell Creek.

**Land and water use.** Land in the watershed is mainly rural and wooded; about 5% is agricultural. Four businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed fully support their designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 17 square miles.
Part of source water protection zones 1, 2, and 3 for the Irvine water system.
Watershed is in PRIDE service region. PRIDE identified 3 straight pipes or failing septic systems in the watershed.

See the color map of this region on p. 127.
Red Lick Creek watershed (051002-04-070)

**Geography.** The Red Lick Creek watershed covers the southwest corner of Estill County, the southeast corner of Madison County, and the northwest corner of Jackson County. The part of the watershed south of Red Lick Creek is in the escarpment area of the Eastern Coal Field physiographic region, characterized by hilly terrain, very rapid surface water runoff, and moderate rates of groundwater drainage. The part of the watershed north of the creek is in the Knobs physiographic region, characterized by hilly terrain, very rapid surface runoff, and very slow groundwater drainage. In level parts of the Knobs, runoff and groundwater drainage are slow. 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 easily weathered clay shales that store water but allow little groundwater flow. Other parts of the watershed lie above interbedded clay shales and siltstones. Other parts of the watershed lie above interbedded clay shales and siltstones.

**Waterways.** Red Lick Creek empties into Station Camp Creek south of Ravena and just northwest of Wagersville. Among the creeks that feed it are Owsley Fork, Joe Lick Fork, Cowbell Creek, Gravel Lick Branch, Stillhouse Branch, Floyd Branch, Shirley Branch, Long Branch, Horns River, and Henderson Branch.

**Land and water use.** Land in the watershed is mainly rural and wooded; about 20% is agricultural. The surface waters of the watershed supply the drinking water for Berea College’s water system. No businesses or organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed fully support their designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.


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248
Watershed Highlights

Watershed covers 70 square miles.
Provides some of the water for the Berea College water system.
Part of source water protection zones 2 and 3 for the Irvine water system.
Except for the Madison County section, the watershed is in PRIDE service region. PRIDE identified 66 straight pipes or failing septic systems in the PRIDE part of the watershed.

See the color map of this region on p. 127.
Kentucky River watershed above Red River (051002-04-080)

**Geography.** The Kentucky River watershed above Red River covers parts of western Estill County and eastern Madison County. The land is in the Knobs physiographic region, characterized by hilly terrain, very rapid surface runoff, and very slow groundwater drainage. In level parts of the Knobs, runoff and groundwater drainage are slow. The watershed lies partly above fractured shales through which groundwater can easily move but which stores very little water. Other parts of the watershed lie over easily weathered clay shales that store water but allow little groundwater flow.

**Waterways.** This watershed includes the section of the Kentucky River between Station Camp Creek (Irvine) and the Red River (Clark County-Estill County line). Among the creeks that feed it are Calloway Creek, Possum Run, Blue Run, Falling Branch, Flint Creek, and Noland Creek. Water from the Station Camp Creek, Kentucky River above Ravenna, White Oak Creek, and Drowning Creek watersheds also flows into this watershed.

**Land and water use.** Land in the watershed is about half agricultural and half rural and wooded; commercial and residential areas make up about 3%. The surface waters of the watershed supply the drinking water for municipal systems in Irvine and Richmond. Six businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed fully support their designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 52 square miles.
Provides drinking water for Irvine and Richmond.
Part of source water protection zone 3 for the Winchester water system.
Irvine and the Estill County Water District discharge treated sewage into the watershed. Recent efforts to regionalize sewer service did not succeed.
Water supply is an issue.
Because the latest assessment indicates full support for swimming, DOW has asked EPA to delist a segment of the Kentucky River that was previously listed as partially impaired by pathogens.
Except for the Madison County section, the watershed is in PRIDE service region. PRIDE identified 5 straight pipes or failing septic systems in the PRIDE part of the watershed.

LEGEND

- Area of this watershed
- Sewage plants
- Public water supplies
- Other water withdrawals
- Locks & dams
- Cities and towns
- Rivers and larger streams
- Smaller streams
- County borders

See the color map of this region on p. 127.
White Oak Creek watershed
(051002-04-090)

**Geography.** The White Oak Creek watershed is in north-central Estill County. The land is in the Knobs physiographic region, characterized by hilly terrain, very rapid surface runoff, and very slow groundwater drainage. In level parts of the Knobs, runoff and groundwater drainage are slow. The watershed lies partly above fractured shales through which groundwater can easily move but which stores very little water. Other sections of the watershed lie over easily weathered clay shales that store water but allow little groundwater flow. Interbedded clay shales and siltstones make up the remainder of the area.

**Waterways.** White Oak Creek empties into the Kentucky River northwest of Irvine. Among the creeks that feed it are Sweet Lick Branch, Masters Creek, and Dry Branch.

**Land and water use.** Land in the watershed is about 70% rural and wooded and about 25% agricultural. Three businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed fully support their designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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252
Watershed Highlights

Watershed covers 11 square miles. Part of source water protection zone 3 for the Irvine water system. Watershed is in PRIDE service region.

See the color map of this region on p. 127.
Drowning Creek watershed
(051002-04-100)

**Geography.** The Drowning Creek watershed lies along the boundary between Madison and Estill Counties. The land is in the Knobs physiographic region, which is characterized by hilly terrain, very rapid surface runoff, and very slow groundwater drainage. In level parts of the Knobs, both runoff and groundwater drainage are slow. The watershed lies partly above fractured shales through which groundwater can easily move but which stores very little water. Other sections of the watershed lie over easily weathered clay shales that store water but allow little groundwater flow. The rest of the watershed lies over interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale).

**Waterways.** Drowning Creek empties into the Kentucky River northeast of Bybee. Among the creeks that feed it are Knob Lick Branch, Oldham Branch, Butler Branch, and Black Branch.

**Land and water use.** Land in the watershed is about 55% agricultural and more than 40% rural and wooded. Two businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed fully support their designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 37 square miles.
Part of source water protection zones 1, 2, and 3 for the Richmond water system.
Except for the Madison County section, the watershed is in PRIDE service region. PRIDE identified 6 straight pipes or failing septic systems in the PRIDE part of the watershed.

See the color map of this region on p. 127.
Red River Region
Red River headwaters watershed
(051002-04-110)

**Geography.** The Red River headwaters watershed lies in Wolfe County and partly in southern Morgan County. The higher eastern part of the watershed is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid rates of surface runoff, and moderate rates of groundwater drainage. The lower western part of the watershed is in the plateau area of the coal field region, characterized by rolling terrain, medium to rapid rates of surface runoff, and slow to medium 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.

**Waterways.** This watershed includes the Red River from its sources to a point just west of Hazel Green. Among the creeks that feed the Red River in this watershed are Lacy Creek, Gilmore Creek, State Road Fork, and Rose Fork.

**Land and water use.** Land in the watershed is mainly rural and wooded; less than 10% is agricultural. Three businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

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

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Watershed Highlights

Watershed covers 59 square miles. Watershed is in PRIDE service region. PRIDE identified 76 straight pipes or failing septic systems in the watershed.

See the color map of this region on p. 129.
Red River Gorge watershed
(051002-04-120)

**Geography.** The Red River Gorge watershed extends from northern Wolfe County, across southern Menifee County, to northeastern Powell County. The land is in the escarpment and plateau areas of the Eastern Kentucky Coal Field physiographic region, characterized by rolling to hilly terrain, medium to very rapid surface runoff, and slow to medium 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. Other parts lie above inter-bedded clay shales and siltstones.

**Waterways.** This watershed includes the section of the Red River from just west of Hazel Green to the junction of the Red River with the Middle Fork Red River (close to Bowen). Among the creeks that feed the Red River in this watershed are Big Branch, Swift Camp Creek, Clifty Creek, Gladie Creek, Wolfpen Creek, Chimney Top Creek, Leatherwood Fork, Indian Creek, Spaas Creek, and Short Creek. Water also flows into the watershed from the Stillwater Creek and Red River headwaters watersheds.

**Land and water use.** Land in the watershed is mainly rural and wooded; about 15% is agricultural. The surface waters of the watershed supply drinking water for the Campton municipal system. Nine businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed include one (an unnamed tributary of Swift Camp Creek) that does not support all of its designated uses, based on biological and/or water-quality data. Sedimentation contributes to the impairment of the stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

See the Watershed Plan for this watershed on page 24.


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Watershed Highlights

Watershed covers 148 square miles.
Provides drinking water for Campton.
Campton discharges treated sewage into the watershed.
Aquatic life partially impaired by sedimentation in an
unnamed tributary of Swift Camp Creek at Campton (2nd
priority TMDL 2002).
Water supply is an issue.
USFS identified this watershed as a priority for the Daniel
Boone National Forest watershed analysis process and
conducted an in-depth analysis to identify restoration
projects. One focus is reducing erosion from recreational
activities.
Except for the Powell County section, the watershed is in
PRIDE service region. PRIDE identified 291 straight
pipes or failing septic systems in the PRIDE part of the
watershed.

LEGEND

Area of this watershed

Sewage plants

Public water supplies

Other water withdrawals

Locks & dams

Cities and towns

Rivers and larger streams

Smaller streams

County borders

Red River Region

See the color map of this region on p. 129.
Stillwater Creek watershed (051002-04-130)

**Geography.** The Stillwater Creek watershed is in central Wolfe County. The higher part of the watershed is in the Eastern Kentucky Coal Field physiographic region, which is characterized by mountainous terrain, rapid rates of surface runoff, and moderate rates of groundwater drainage. The lower part of the watershed is in the plateau area of the coal field region, characterized by rolling terrain, medium to rapid rates of surface runoff, and slow to medium 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.** Stillwater Creek empties into the Red River in Wolfe County just east of the Daniel Boone National Forest and northeast of Campton. Among the creeks that feed it are Rockhouse Creek, Betts Branch, Buchanan Fork, Baptist Fork, Rocky Branch, and Laurel Fork.

**Land and water use.** Land in the watershed is about 80% rural and wooded and 20% agricultural. No businesses or organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed fully support their designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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262
Watershed Highlights

Watershed covers 32 square miles. Watershed is in PRIDE service region. PRIDE identified 3 straight pipes or failing septic systems in the watershed.

See the color map of this region on p. 129.
Middle & South Forks of Red River watershed (051002-04-140)

**Geography.** The Middle & South Forks of Red River watershed covers the western tip of Wolfe County and part of eastern Powell County. The land is in the escarpment area of the Eastern Coal Field physiographic region, characterized by hilly terrain and very high rates of surface runoff and moderate groundwater drainage. The watershed is underlain by coals, sandstones, and shales: this geology generally is 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. Other parts lie above interbedded clay shales and siltstones.

**Waterways.** The Middle Fork of the Red River drains the eastern part of the watershed via numerous tributary creeks and flows into the South Fork of the Red River close to Lombard. The South Fork of the Red River drains the western part of the watershed and empties into the Red River at the bottom of the watershed close to Bowen.

**Land and water use.** Land in the watershed is primarily rural and wooded; about 5% is agricultural. The surface waters of the watershed supply the drinking water for Natural Bridge State Park. Five businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The creeks assessed in 1998-1999 in this watershed fully support all of their designated uses, based on biological and/or water-quality data. However, three streams did not support uses in past years, and TMDL plans for managing these streams have been approved. Brines released during oil well operations raised the levels of chlorides, salinity, and total dissolved solids in these streams and led to their failure to support the aquatic life designated use.


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264
Watershed Highlights

Watershed covers 58 square miles.
Provides drinking water for Natural Bridge State Park.
A TMDL is in place for chlorides in the South Fork Red River, Sand Lick Fork, and Stump Cave Branch. Because the oil and gas drilling that led to impairment is no longer active, DOW has requested delisting of the South Fork and Sand Lick.
USFS is trying to reduce impacts of old roads and trails on the watershed, and wants to address hazards posed by certain dams.
The Wolfe County part of the watershed is in the PRIDE service region.
Cane Creek watershed of Red River
(051002-04-150)

Geography. The Cane Creek of Red River watershed lies in northeastern Powell County and includes a bit of Menifee County. The land is in the Eastern Kentucky Coal Field physiographic region, characterized by mountainous terrain, rapid surface runoff, and moderate rates of 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. Other parts lie above interbedded clay shales and siltstones.

Waterways. Cane Creek empties into the Red River between Bowen and Stanton. Among the creeks that feed it are Lower Cane Creek and Right Fork Cane Creek.

Land and water use. Land in the watershed is mainly rural and wooded; about 10% is agricultural. No businesses or organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

Agency data assessment. The assessed creek segments in this watershed includes one that does not support its designated uses, based on biological and/or water-quality data. Pathogens contribute to the impairment of this stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 14 square miles.
Pathogens make contact recreation unsafe in Cane Creek from the mouth to Right Fork of Lower Cane Creek (1st priority TMDL 2002).
The Menifee County portion of the watershed is in the PRIDE service region.
Red River mouth watershed
(051002-04-160)

**Geography.** The Red River mouth watershed covers north-central Powell County
and parts of southeast Clark County and northwest Estill County. The land is in the
Knobs physiographic region, characterized by hilly terrain, very rapid surface
runoff, and very slow groundwater drainage. In level parts of the Knobs, runoff
and groundwater drainage are slow. The watershed lies partly above fractured
shales through which groundwater can easily move but which stores very little
water. Other parts lie above interbedded clay shales and siltstones. Unconsolidated
silt, sands, and gravels occur along the flood plain of the river and on adjoining
upland terraces.

**Waterways.** This watershed includes the Red River between the junction of the
Red River with the Middle Fork Red River (close to Bowen) and where the Red
River empties into the Kentucky River at the corners of Estill, Clark, and Madison
Counties. Among the creeks that feed the Red River in this section are Cat Creek,
Pecks Creek, Hatton Creek, Anderson Branch, Hatcher Creek, Pompeii Branch,
Tug Branch, Judy Creek, Beech Fork, Black Creek, Twin Creek, Woodward Creek,
and Loglick Creek. Water also flows into the watershed from the Middle & South
Forks of Red River, Hardwick Creek, Cane Creek of Red River, Lulbegrud Creek,
and Red River Gorge watersheds.

**Land and water use.** Land in the watershed is about 60% rural and wooded and
40% agricultural. The surface waters of the watershed supply the drinking water
for municipal systems in Clay City and Stanton and for the Beech Fork Water
Commission. Eight businesses and organizations hold permits for discharges into
the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed fully
support their designated uses, based on biological and/or water-quality data. See
the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of
impaired streams for full details.

**Kentucky River Basin Management Plan, 2002.** Information is from the first basin cycle (1997-2002),
including the 1998-1999 monitoring effort and the 2000 Assessment Report. See kywatersheds.org or
Watershed Highlights

Watershed covers 96 square miles.
Provides drinking water for the Clay City, Stanton, and the Beech Fork Water Commission.
Part of source water protection zone 3 for the Richmond water system.
Stanton and Clay City discharge treated sewage into the watershed.
Water supply is an issue.
Thirty miles of Red River that were previously listed as impaired for swimming and aquatic life will be delisted on the basis of newer data.
The Estill County section of the watershed is in the PRIDE service region. PRIDE identified 16 straight pipes or failing septic systems in that section.

See the color map of this region on p. 129.
**Hardwick Creek watershed (051002-04-170)**

**Geography.** The Hardwick Creek watershed occupies south-central Powell County and part of Estill County. The land is in the Knobs physiographic region, which is characterized by hilly terrain, very rapid surface runoff, and very slow groundwater drainage. In level parts of the Knobs, runoff and groundwater drainage are slow. The watershed lies partly above fractured shales through which groundwater can easily move but which stores very little water. Other sections of the watershed lie over easily weathered clay shales that store water but allow little groundwater flow. Interbedded clay shales and siltstones underlie the remaining area.

**Waterways.** Hardwick Creek empties into the Red River just south of Clay City. Among the creeks that feed Hardwick Creek are Daniel Branch, Branham Branch, Ballard Branch, Little Hardwick Creek, and Frames Branch.

**Land and water use.** Land in the watershed is about 85% rural and wooded and about 15% agricultural. No businesses or organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed include one segment of Hardwick Creek that does not support its designated uses, based on biological and/or water-quality data. Pathogens contribute to the impairment of the stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 27 square miles. Pathogens make contact recreation unsafe in Hardwick Creek from its mouth to Little Hardwick Creek (1st priority TMDL 2002). The Estill County section of the watershed is in the PRIDE service region. PRIDE identified 9 straight pipes or failing septic systems in that section.

LEGEND

Area of this watershed
Sewage plants
Public water supplies
Other water withdrawals
Locks & dams
Cities and towns
Rivers and larger streams
Smaller streams
County borders

See the color map of this region on p. 129.
Lulbegrud Creek watershed  
(051002-04-180)

**Geography.** The Lulbegrud Creek watershed lies in Montgomery County, Powell County, and Clark County. The land is in the Knobs physiographic region, which is characterized by hilly terrain, very rapid surface runoff, and very slow groundwater drainage. In level parts of the Knobs, runoff and groundwater drainage are slow. The watershed lies partly above fractured shales through which groundwater can easily move but which stores very little water Other sections of the watershed lie over easily weathered clay shales that store water but allow little groundwater flow. There are also areas of interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale). Interbedded clay shales and siltstones underlie the remaining area.

**Waterways.** Lulbegrud Creek empties into the Red River at the corner of Clark, Powell, and Estill Counties. Among the creeks that feed it are Hog Creek, North Branch, Long Branch, and Snow Creek.

**Land and water use.** Land in the watershed is about 55% agricultural and 45% rural and wooded. Three businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed fully support their designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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272
Watershed Highlights

Watershed covers 53 square miles. Livestock density is substantially higher than the basin average.

LEGEND

- Area of this watershed
- Sewage plants
- Public water supplies
- Other water withdrawals
- Locks & dams
- Cities and towns
- Rivers and larger streams
- Smaller streams
- County borders

See the color map of this region on p. 129.
Kentucky River Basin Management Plan
Dix River Region
Dix River headwaters watershed  
(051002-05-150)

Geography. The Dix River headwaters watershed covers southern Garrard County, western Rockcastle County, and northeastern Lincoln County. The land is in the outer subregion of the Bluegrass physiographic region, which is characterized by undulating terrain, moderate to rapid surface runoff, and moderate rates of groundwater drainage. The watershed lies partly above fractured shales through which groundwater can easily move but which stores very little water. Other sections of the watershed lie over easily weathered clay shales that store water but allow little groundwater flow. There are also areas of interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale) and areas of interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough). Interbedded clay shales and siltstones underlie the rest of the area.

Waterways. The headwaters watershed of the Dix River includes the drainage of the river from its headwaters down to the mouth of Gilberts Creek just west of Gilbert (at US 27 between Lancaster and Stanford). Among the creeks that feed it are Negro Creek, Turkey Creek, Copper Creek, Fall Lick, Drakes Creek, Harmons Lick, Walnut Flat Creek, Cedar Creek, Stingy Creek, Turkey Creek, and Gilberts Creek.

Land and water use. Land in the watershed is 60% agricultural and almost 40% rural and wooded. Three businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

Agency data assessment. The assessed creek segments in this watershed include one segment that only partially supports its designated uses, based on biological and/or water-quality data. Siltation contributes to the impairment of the stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.


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276
Watershed Highlights

Watershed covers 175 square miles. Brodhead and Crab Orchard discharge treated sewage into the watershed.

Aquatic life partially impaired by sedimentation in Copper Creek from its mouth to 1.5 miles upstream (2nd priority TMDL 2002).

Livestock density is substantially higher than the basin average.

Watershed is in PRIDE service region. PRIDE identified 144 straight pipes or failing septic systems in the watershed.

See the color map of this region on p. 131.
Logan Creek watershed (051002-05-160)

**Geography.** The Logan Creek watershed lies in central Lincoln County. The land is in the outer subregion of the Bluegrass physiographic region, characterized by undulating terrain, moderate to rapid surface runoff, and moderate rates of groundwater drainage. The watershed lies partly above fractured shales through which groundwater can easily move but which stores very little water. Other sections of the watershed lie over easily weathered clay shales that store water but allow little groundwater flow. There are also areas of interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale) and areas of interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough). Interbedded clay shales and siltstones underlie the rest of the area.

**Waterways.** Logan Creek empties into the Dix River northeast of Stanford, near Logantown. Among the creeks that feed it are Saint Asaph Creek and Neals Creek.

**Land and water use.** Land in the watershed is about 70% agricultural, 20% rural and wooded, and 10% residential or commercial. The surface waters of the watershed supply the drinking water for the municipal system in Stanford. Two businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed waters in this watershed include Stanford Lake, which only partially supports its use as a drinking water supply, based on biological and/or water-quality data. Excess nutrient enrichment contributes to impairment of the lake. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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### Watershed Restoration Ranking

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Watershed Highlights

Watershed covers 25 square miles.
Contains Stanford reservoir, which only partially supports
use as a drinking water supply because of excessive
nutrients [2000 305(b), 2nd priority TMDL 1996].
Stanford discharges treated sewage into the watershed.
Livestock density is substantially higher than the basin
average.
Watershed is in PRIDE service region. PRIDE identified 36
straight pipes or failing septic systems in the watershed.

LEGEND
Area of this watershed
Sewage plants
Public water supplies
Other water withdrawals
Locks & dams
Cities and towns
Rivers and larger streams
Smaller streams
County borders

Watershed Summaries

Dix River Region

See the color map of this region on p. 131.
Dix River-Herrington Lake watershed (051002-05-170)

**Geography.** The Dix River-Herrington Lake watershed includes the western edge of Garrard County, part of northern Lincoln County, and eastern portions of Boyle and Mercer Counties. The land is in the inner subregion of the Bluegrass physiographic region, characterized by undulating terrain and moderate rates of both surface runoff and groundwater drainage. Most of the watershed lies above thick layers of easily dissolved limestone that form carbonate aquifers. Groundwater flows through channels in the limestone, so caves and springs are common in regions with this geology. Some areas lie above interbedded limestones and shales (>20% limestone, allowing groundwater flow where clay content is low enough).

**Waterways.** The Dix River-Herrington Lake watershed includes the river itself from the mouth of Gilberts Creek (southwest of Lancaster) to its confluence with the Kentucky River (close to High Bridge). Herrington Lake makes up much of this stretch of the Dix River. Among the creeks that feed the river within this watershed are Hawkins Branch, Boone Creek, White Oak Creek, McKeecknie Creek, Tanyard Branch, Cane Run, and Rocky Fork. The watershed also receives water from the Dix River headwaters, Logan Creek, Hanging Fork Creek, Clarks Run, and Spears Creek & Mocks Branch watersheds.

**Land and water use.** Land in the watershed is almost 90% agricultural and almost 5% residential. The surface waters of the watershed supply the drinking water for the municipal systems in Lancaster and Danville. Eleven businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed river segments in this watershed fully support their designated uses, based on biological and/or water-quality data. Herrington Lake does not support its designated uses, because of excess nutrient enrichment from a variety of sources. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.


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Watershed Highlights

Watershed covers 92 square miles.
Provides drinking water for Lancaster and Danville.
Part of source water protection zones 1, 2, and 3 for the Harrodsburg water system.
Lancaster and Perryville discharge treated sewage into the watershed.
Aquatic life in Herrington Lake is impaired by overenrichment and low dissolved oxygen; a TMDL is in progress.
DOW plans to delist a Garrard County segment of the Dix River previously listed as impaired by pathogens.
Groundwater is substantially more sensitive than the basin average.
Livestock density is substantially higher than the basin average.
Clean Water Action Plan (CWAP) watershed.
The Garrard and Lincoln County portions of the watershed are in the PRIDE region. PRIDE identified 45 straight pipes or failing septic systems in that area.

LEGEND
Area of this watershed

Sewage plants

Public water supplies

Other water withdrawals

Locks & dams

Cities and towns

Rivers and larger streams

Smaller streams

County borders

See the color map of this region on p. 131.
Hanging Fork Creek watershed  
(051002-05-180)

**Geography.** The Hanging Fork Creek watershed covers northwestern Lincoln County and includes adjacent parts of Casey and Boyle Counties. The land is in the outer subregion of the Bluegrass physiographic region, which is characterized by undulating terrain, moderate to rapid surface runoff, and moderate rates of groundwater drainage. The watershed lies partly above fractured shales through which groundwater can easily move but which stores very little water. Other sections lie over interbedded clay shales and siltstones. There are also areas of interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale).

**Waterways.** Hanging Fork Creek empties into the Dix River west of Lancaster, near Hedgeville. Among the creeks that feed it are Baughman Creek, McKinney Branch, Peyton Creek, Blue Lick Creek, White Oak Creek, Harris Creek, and Knoblick Creek.

**Land and water use.** Land in the watershed is almost 80% agricultural, 16% rural and wooded, and 4% residential. Three businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed include one part of Hanging Fork Creek that does not support some or all of its designated uses, based on biological and/or water-quality data. Pathogens from agricultural sources contribute to the impairment of these streams. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 96 square miles.
Pathogens make contact recreation unsafe in Hanging Fork Creek from its mouth to Knoblick Creek (1st priority TMDL 2002).
Livestock density is substantially higher than the basin average.
Except for the Boyle County section, the watershed is in PRIDE service region. PRIDE identified 47 straight pipes or failing septic systems in the PRIDE part of the watershed.

LEGEND

Area of this watershed

Sewage plants

Public water supplies

Other water withdrawals

Locks & dams

Cities and towns

Rivers and larger streams

Smaller streams

County borders

See the color map of this region on p. 131.
**Geography.** The Clarks Run watershed is in southeastern Boyle County and an adjacent edge of Lincoln County. The land is in the inner subregion of the Bluegrass physiographic region, characterized by undulating terrain and moderate rates of both surface runoff and groundwater drainage. The watershed lies partly above fractured shales through which groundwater can easily move but which stores very little water. Other parts lie over interbedded clay shales and siltstones. There are also areas of interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale) and areas of interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough).

**Waterways.** Clarks Run empties into the Dix River east of Danville, near Little Needmore. Among the creeks that feed it is Balls Branch.

**Land and water use.** Land in the watershed is more than 80% agricultural. It includes the southern half of Danville, and therefore is about 8% residential, and about 8% commercial or industrial. Five businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** Three assessed segments of Clarks Run include one that does not support its designated uses, based on biological and/or water-quality data. One fully supports uses, and one only partially supports uses. Organic enrichment from municipal point sources and urban runoff contribute to the impairment of these streams. Pesticides from urban runoff also contribute in the nonsupporting segment. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 28 square miles. Danville discharges treated sewage into the watershed. Aquatic life fully or partially impaired by overenrichment and pesticides in Clarks Run below sewage plant (1st and 2nd priority TMDL 2002). Groundwater is substantially more sensitive than the basin average. This is a Watershed Watch Citizen Action Plan watershed.

LEGEND

Area of this watershed

Sewage plants
Public water supplies
Other water withdrawals
Locks & dams
Cities and towns
Rivers and larger streams
Smaller streams
County borders

See the color map of this region on p. 131.
Spears Creek & Mocks Branch watershed (051002-05-200)

**Geography.** The Spears Creek & Mocks Branch watershed occupies northeastern Boyle County and part of southern Mercer County. The land is in the inner sub-region of the Bluegrass physiographic region, characterized by undulating terrain and moderate rates of both surface runoff and groundwater drainage. Most of the watershed lies above thick layers of easily dissolved limestone that form carbonate aquifers. Groundwater flows through channels in the limestone, so caves and springs are common in regions with this geology. Some areas lie above inter-bedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough).

**Waterways.** Both Spears Creek and Mocks Branch flow into Herrington Lake (the Dix River) at Gwinn Island, northeast of Danville.

**Land and water use.** Land in the watershed is 92% agricultural, and most of the rest is residential or commercial (Spears Creek drains the northern half of Danville). Three businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

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

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286
Watershed Highlights

Watershed covers 26 square miles.
Mock's Branch watershed is part of source water protection zone 3 for the Harrodsburg water system.
Groundwater is substantially more sensitive than the basin average.
Livestock density is substantially higher than the basin average.
NRCS has conducted a special project to address nonpoint source pollution concerns in the watershed for the past five years, implementing a wide variety of best management practices.
The Agriculture Watershed Awareness Program (AWAP) trained volunteers and tested 12 sites in the watershed on four dates during 2001.
Palisades Region
Kentucky River watershed above Boonesborough (051002-05-005)

**Geography.** The Kentucky River watershed above Boonesborough lies along the boundary between Clark County and Madison County. The land is in the Bluegrass physiographic region, characterized by hilly or undulating terrain, medium to very rapid rates of surface runoff, and slow to medium groundwater drainage. Parts of the watershed lie over easily weathered clay shales that store water but allow little groundwater flow. There are also areas of interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale). The rest of the watershed lies above interbedded clay shales and siltstones.

**Waterways.** This watershed includes the section of the Kentucky River between the Red River and Lower Howard Creek (Lisletown). Among the creeks that feed it are Twomile Creek, Indian Creek, and Bull Run. Water from the Otter Creek, Fourmile Creek, Upper Howard Creek, Red River mouth, and Kentucky River above Red River watersheds also flow into this watershed.

**Land and water use.** Land in the watershed is about 70% agricultural and 30% rural and wooded. The surface waters of the watershed supply the drinking water for the municipal system in Winchester. Four businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed segment of the river in this watershed does not support some or all of its designated uses, based on biological and/or water-quality data. Pathogens contribute to the impairment of the segment. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.


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290
Watershed Highlights

Watershed covers 35 square miles. Provides drinking water for Winchester. Pathogens make contact recreation unsafe in a 40-mile stretch of the Kentucky from Silver Creek to Red River (1st priority TMDL 2002). Water supply is an issue. Livestock density is substantially higher than the basin average.

LEGEND

Area of this watershed

Sewage plants

Public water supplies

Other water withdrawals

Locks & dams

Cities and towns

Rivers and larger streams

Smaller streams

County borders

See the color map of this region on p. 133.
**Upper Howard Creek watershed**

(051002-05-010)

**Geography.** The Upper Howard Creek watershed covers part of southeastern Clark County. The land is in the outer subregion of the Bluegrass physiographic region, which is characterized by undulating terrain, moderate to rapid surface runoff, and moderate rates of groundwater drainage. The watershed lies partly above fractured shales through which groundwater can easily move but which stores very little water. Other sections of the watershed lie over easily weathered clay shales that store water but allow little groundwater flow. There are also areas of interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale) and areas of interbedded limestones and shales (>20% limestone, allowing groundwater flow where clay content is low enough).

**Waterways.** Upper Howard Creek empties into the Kentucky River east of Ford. Among the creeks that feed it are Dry Fork, Kings Fork, and Little Howard Creek.

**Land and water use.** Land in the watershed is about 75% agricultural and more than 20% rural and wooded. Three businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed fully support their designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 38 square miles.
Part of source water protection zone 3 for the Winchester water system.
Livestock density is substantially higher than the basin average.

LEGEND

Area of this watershed

Sewage plants

Public water supplies

Other water withdrawals

Locks & dams

Cities and towns

Rivers and larger streams

Smaller streams

County borders

See the color map of this region on p. 133.
Muddy Creek watershed (051002-05-020)

**Geography.** The Muddy Creek watershed is in western Madison County. The land is in the outer subregion of the Bluegrass physiographic region, characterized by undulating terrain, moderate to rapid surface runoff, and moderate rates of groundwater drainage. The watershed lies partly above fractured shales through which groundwater can easily move but which stores very little water. Other sections of the watershed lie over easily weathered clay shales that store water but allow little groundwater flow. There are also areas of interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale).

**Waterways.** Muddy Creek empties into the Kentucky River north of Doylesville. Among the creeks that feed it are Viny Fork, Hickory Lick, Clear Creek, and Dunbar Branch.

**Land and water use.** Land in the watershed is about 75% rural and wooded, about 10% each commercial and wooded, and less than 5% residential. The surface waters of the watershed supply the drinking water for the Blue Grass Army Depot, through which it flows. Seven businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** One of the two assessed segments of the creek fails to support all its designated uses, based on biological and/or water-quality data. Pathogens contribute to the impairment of the segment. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 68 square miles.
Part of source water protection zones 2 and 3 for the water system of Winchester.
Provides drinking water for Blue Grass Army Depot.
Pathogens make contact recreation unsafe in Muddy Creek from Viny Fork to the Kentucky River (1st priority TMDL 2002).
The potential for agricultural erosion is substantially higher than the basin average.
Livestock density is substantially higher than the basin average.
This is a Watershed Watch Citizen Action Plan watershed.

See the color map of this region on p. 133.
Fourmile Creek watershed (051002-05-030)

Geography. The Fourmile Creek watershed occupies south-central Clark County. The land is in the Bluegrass physiographic region, which is characterized by hilly or undulating terrain, medium to very rapid rates of surface runoff, and slow to medium groundwater drainage. Much of the watershed lies above thick layers of easily dissolved limestone that form carbonate aquifers. Groundwater flows through channels in the limestone, so caves and springs are common in regions with this geology. Other parts of the watershed lie over interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale). Still other areas are underlain by interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough).

Waterways. Fourmile Creek empties into the Kentucky River east of Ford. Among the creeks that feed it are Stoner Branch, Harris Branch, and East Fork Fourmile Creek.

Land and water use. Land in the watershed is 85% agricultural, more than 10% rural and wooded, and almost 3% residential. No businesses or organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

Agency data assessment. The assessed creek segments in this watershed fully support their designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.


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Watershed Highlights

Watershed covers 27 square miles.
Part of source water protection zones 1, 2, and 3 for the Winchester water system.
Groundwater is substantially more sensitive than the basin average.
Livestock density is substantially higher than the basin average.
Otter Creek watershed (051002-05-040)

Geography. The Otter Creek watershed covers north-central Madison County. The land is in the outer subregion of the Bluegrass physiographic region, characterized by undulating terrain, moderate to rapid surface runoff, and moderate rates of groundwater drainage. Parts of the watershed lie over interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale). Other areas are underlain by interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough).

Waterways. Otter Creek empties into the Kentucky River at Ford. Among the creeks that feed it are Hicks Branch, Tribble Branch, East and West Forks Otter Creek, Lost Fork, and Stony Run.

Land and water use. Land in the watershed is about 85% agricultural; the rest of the land is divided roughly equally among commercial, residential, and rural wooded categories. Six businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

Agency data assessment. The assessed creek segments in this watershed include one (East Fork Otter Creek) that only partially supports its designated uses, based on biological and/or water-quality data. Excess nutrients contribute to the impairment of the stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.


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298
Watershed Highlights

Watershed covers 65 square miles.
Part of source water protection zones 1, 2, and 3 for the Richmond water system.
Richmond discharges treated sewage into the watershed (Dreaming Creek sewage treatment plant).
Aquatic life partially impaired by overenrichment in the East Fork of Otter Creek from its mouth to 2.7 miles upstream (2nd priority TMDL 2002).
Groundwater is substantially more sensitive than the basin average.
The potential for agricultural erosion is substantially higher than the basin average.
Livestock density is substantially higher than the basin average.
Population without access to public sewers is substantially higher than the basin average.

LEGEND

Area of this watershed
Sewage plants
Public water supplies
Other water withdrawals
Locks & dams
Cities and towns
Rivers and larger streams
Smaller streams
County borders

Watershed Summaries

See the color map of this region on p. 133.
Lower Howard Creek watershed
(051002-05-050)

**Geography.** The Lower Howard Creek watershed is in southwestern Clark County. The land is in the inner subregion of the Bluegrass physiographic region, which is characterized by undulating terrain and moderate rates of both surface runoff and groundwater drainage. The watershed lies above thick layers of easily dissolved limestone that form carbonate aquifers. Groundwater flows through channels in the limestone, so caves and springs are common in regions with this geology.

**Waterways.** Lower Howard Creek empties into the Kentucky River at Lisletown. West Fork Lower Howard Creek feeds into Lower Howard.

**Land and water use.** Land in the watershed is about 85% agricultural, about 5% rural and wooded, and less than 10% residential. The surface waters of the watershed supply the drinking water for the municipal system in Winchester. There are no permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segment in this watershed does not support some or all of their designated uses, based on biological and/or water-quality data. A variety of factors may contribute to the impairment of the stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 19 square miles.
Contains a drinking water reservoir for Winchester.
Part of source water protection zones 2 and 3 for Kentucky-
American’s Lexington intake on the Kentucky River.
Aquatic life is impaired by overenrichment and by other,
unknown, causes in Lower Howard Creek below the
Winchester Reservoir (1st priority TMDL 2002).
Groundwater is substantially more sensitive than the basin
average.
Livestock density is substantially higher than the basin
average.

LEGEND

Area of this watershed

Sewage plants

Public water supplies

Other water withdrawals

Locks & dams

Cities and towns

Rivers and larger streams

Smaller streams

County borders

See the color map of this region on p. 133.
Kentucky River watershed near Valley View (051002-05-060)

**Geography.** The Kentucky River watershed near Valley View includes parts of the following counties: Clark, Madison, Fayette, Jessamine, and Garrard. The land is in the hills of the bluegrass subregion of the Bluegrass physiographic region, characterized by hilly terrain, very rapid surface runoff, and slow groundwater drainage. The northern side of the watershed lies above thick layers of easily dissolved limestone that form carbonate aquifers. Groundwater flows through channels in the limestone, so caves and springs are common in regions with this geology. The southern side includes areas of interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale) and areas of interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough).

**Waterways.** This watershed includes the Kentucky River from Lower Howard Creek (Lisletown) to just below Lock and Dam Number 8. Among creeks that feed it are Jouett Creek, Calloway Creek, Elk Lick Creek, Raven Run, Marble Creek, Stony Fork, and Davis Creek. This watershed also receives water flowing from the following watersheds: Kentucky River above Boonesborough, Lower Howard Creek, Otter Creek, Boone Creek, Tate Creek, Silver Creek, Paint Lick Creek, and Sugar Creek.

**Land and water use.** Land in the watershed is about two-thirds agricultural and nearly one-third rural and wooded. The surface waters of the watershed supply the drinking water for municipal systems in Lexington, Nicholasville, and Lancaster. Eight businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** No assessments were made in this watershed.

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Watershed Highlights

Watershed covers 82 square miles. Provides drinking water for Lexington (Kentucky-American), Nicholasville, and Lancaster. Part of source water protection zone 3 for the Harrodsburg water system. No assessments of fecal contamination in 2000. Water supply is a critical issue. Groundwater is substantially more sensitive than the basin average. Livestock density is substantially higher than the basin average. The Jessamine County portion of the watershed is in the PRIDE service region. PRIDE identified 85 straight pipes or failing septic systems in that part of the watershed. See the color map of this region on p. 133.
Boone Creek watershed (051002-05-070)

**Geography.** The Boone Creek watershed lies along the boundary between Fayette County and Clark County. The land is in the inner subregion of the Bluegrass physiographic region, characterized by undulating terrain and moderate rates of both surface runoff and groundwater drainage. The watershed lies above thick layers of easily dissolved limestone that form carbonate aquifers. Groundwater flows through channels in the limestone, so caves and springs are common in regions with this geology.

**Waterways.** Boone Creek empties into the Kentucky River just north of Clays Ferry and Interstate 75. Among the creeks that feed it are Baughman Fork, Jones Creek, and Mary Reynolds Creek.

**Land and water use.** Land in the watershed is mainly agricultural. Four businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed include three that do not fully support designated uses, based on biological and/or water-quality data. Nutrients and pathogens from agricultural and municipal sources and from sewage package plants contribute to the impairment of these streams. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details. EPA approved a TMDL (total maximum daily load) plan for the unnamed tributary of Baughman Fork.

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Watershed Highlights

Watershed covers 44 square miles.
Part of source water protection zones 1, 2, and 3 for the Kentucky-American (Lexington) intake.
The Blue Sky plant discharges treated sewage into the watershed. Plant has not been in compliance.
Pathogens make contact recreation unsafe in Boone Creek above Baughman Fork (TMDL approved 2001).
Aquatic life impaired by overenrichment in the Blue Sky tributary of Baughman Fork (1st priority TMDL 2002), partially impaired by overenrichment in Baughman Fork below Blue Sky and in Boone Creek below Baughman Fork (2nd priority TMDL 2002).
Groundwater is substantially more sensitive than the basin average.
Livestock density is substantially higher than the basin average.

LEGEND
Area of this watershed

Sewage plants
Public water supplies
Other water withdrawals

Locks & dams
Cities and towns
Rivers and larger streams
Smaller streams
County borders

See the color map of this region on p. 133.
Tate Creek watershed (051002-05-080)

**Geography.** The Tate Creek watershed lies in Madison County to the northwest of Richmond. The upper reaches of the watershed lie in the outer subregion of the Bluegrass physiographic region, characterized by undulating terrain, moderate to rapid surface runoff, and moderate rates of groundwater drainage. The lower part of the watershed is in the hills of the bluegrass subregion of the Bluegrass physiographic region, characterized by hilly terrain, very rapid surface runoff, and slow groundwater drainage. Parts of the watershed lie over interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale). Other areas are underlain by interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough).

**Waterways.** Tate Creek empties into the Kentucky River at Valley View. Among the creeks that feed it are Irvine Lick, Finney Fork, Honey Branch, Shallow Ford Creek, Buffalo Creek, and Long Branch.

**Land and water use.** Land in the watershed is roughly 85% agricultural, 8% rural and wooded, and 6% residential or commercial. Five businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed include one (Shallow Ford Creek) that does not support its designated uses, based on biological and/or water-quality data. Municipal point sources contribute to the impairment of these streams. One segment of Tate Creek only partially supports its uses. Agricultural and municipal sources may contribute to this impairment. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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306
Watershed Highlights

Watershed covers 37 square miles.
Part of source water protection zones 1, 2, and 3 for the Nicholasville water system.
Richmond discharges treated sewage into the watershed (Tates Creek sewage treatment plant).
Aquatic life impaired in Shallow Ford Creek [2000 305(b)].
Aquatic life partially impaired by overenrichment in Tate Creek from Shallow Ford Creek to mouth (2nd priority TMDL 2002).
Groundwater is substantially more sensitive than the basin average.
The potential for agricultural erosion, livestock density, and population without access to public sewers are all substantially higher than the basin average.
Silver Creek watershed (051002-05-090)

**Geography.** The Silver Creek watershed covers much of southern Madison County. Most of the upper reaches of the watershed lie in the outer subregion of the Bluegrass physiographic region, characterized by undulating terrain, moderate to rapid surface runoff, and moderate rates of groundwater drainage. The southernmost section (around Berea) is part of the Knobs region, characterized by hilly terrain, very rapid surface runoff, and very slow groundwater drainage. In level parts of the Knobs, runoff and groundwater drainage are slow. The lower part of the watershed is in the hills of the bluegrass subregion of the Bluegrass physiographic region, characterized by hilly terrain, very rapid surface runoff, and slow groundwater drainage. Parts of the watershed lie over interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale). Other areas are underlain by interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough).

**Waterways.** Silver Creek empties into the Kentucky River at the western corner of Madison County. Creeks that feed it are Terrill Branch, Brushy Fork, Hays Fork, Harts Fork, Elk Garden Branch, Taylor Fork, Bogie Branch, and Jackson Branch.

**Land and water use.** Land in the watershed is more than 75% agricultural, about 15% rural and wooded, and about 7% residential or commercial. The surface waters of the watershed supply drinking water for the Berea College system. Thirteen businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed waters in this watershed include four that do not support some or all of their designated uses, based on biological and/or water-quality data. One is designated threatened. Pathogens and siltation from agricultural activities, septic tanks, and municipal point sources contribute to the impairment of these streams. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.


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308
Watershed Highlights

Watershed covers 126 square miles. Provides some water for the Berea College water system. Part of Lancaaster source water protection zones 2 and 3. Berea discharges treated sewage into the watershed. Pathogens partially impair contact recreation in Silver Cr. below Taylor Fk. (2nd priority TMDL 2002). Aquatic life and secondary contact recreation (boating) are partially impaired in Wilgreen Lk. by overenrichment [1998 303(d) and 2000 305(b)]. Aquatic life partially impaired by sedimentation in Silver Cr. between Taylor Fk. and Harts and Hay Fks. (2nd priority TMDL 2002) and by industrial point sources in Harts Fk. at Ajax Magnathermic [2000 305(b)]. Aquatic life threatened in Hays Fk. [2000 305(b)]. Water supply is an issue. Groundwater substantially more sensitive than basin average. Livestock density, potential for agricultural erosion, and unsewered population substantially above basin average.

LEGEND

Area of this watershed

Sewage plants

Public water supplies

Other water withdrawals

Locks & dams

Cities and towns

Rivers and larger streams

Smaller streams

County borders

See the color map of this region on p. 133.
Paint Lick Creek watershed
(051002-05-100)

**Geography.** The Paint Lick Creek watershed lies along the line between Madison County and Garrard County. The upper reaches of the watershed are situated in the outer subregion of the Bluegrass physiographic region, which is characterized by undulating terrain, moderate to rapid surface runoff, and moderate rates of groundwater drainage. The lower part of the watershed is in the hills of the bluegrass subregion of the Bluegrass physiographic region, characterized by hilly terrain, very rapid surface runoff, and slow groundwater drainage. Parts of the watershed lie over interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale). Other areas lie over interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough).

**Waterways.** Paint Lick Creek empties into the Kentucky River at the juncture of Fayette, Madison, and Garrard Counties. Among the creeks that feed it in Garrard County are Walnut Meadow Branch, White Lick Creek, Frog Branch, Lowell Branch, Broadus Branch, Long Branch, and Back Creek. Gilead Branch, Dog Walk Branch, Wheeler Branch, and Sledd Branch are among its Madison County tributaries.

**Land and water use.** Land in the watershed is about 85% agricultural, about 15% rural and wooded, and less than 3% residential and commercial. Four businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed include one segment that only partially supports its designated uses, based on biological and/or water-quality data. Pathogens from agricultural sources contribute to the impairment of the streams. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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310
Watershed Highlights

Watershed covers 109 square miles.
Part of source water protection zones 1, 2, and 3 for the Lancaster water system.
Pathogens partially impair contact recreation in Paint Lick Creek from its mouth to Back Creek (2nd priority TMDL 2002).
Groundwater is substantially more sensitive than the basin average.
Livestock density is substantially higher than the basin average.
The Garrard County portion of the watershed is in the PRIDE service region. PRIDE identified 101 straight pipes or failing septic systems in that part of the watershed.

LEGEND
Area of this watershed
Sewage plants
Public water supplies
Other water withdrawals
Locks & dams
Cities and towns
Rivers and larger streams
Smaller streams
County borders

Watershed Summaries
Sugar Creek watershed (051002-05-110)

**Geography.** The Sugar Creek watershed occupies central Garrard County. The land is in the hills of the bluegrass subregion of the Bluegrass physiographic region, characterized by hilly terrain, very rapid surface runoff, and slow groundwater drainage. Parts of the watershed lie over interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale). Other areas are underlain by interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough).

**Waterways.** Sugar Creek empties into the Kentucky River due north of Lancaster. Among the creeks that feed it are Scotch Fork and the East, Middle, and West Forks of Sugar Creek.

**Land and water use.** Land in the watershed is mainly agricultural; about 6% is rural and wooded. No businesses or organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** No creek segments were assessed in this watershed.

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Watershed Highlights

Watershed covers 42 square miles.
Part of source water protection zones 1, 2, and 3 for the Lancaster water system.
discharges treated sewage into the watershed.
Livestock density is substantially higher than the basin average.
Watershed is in PRIDE service region. PRIDE identified 60 straight pipes or failing septic systems in the watershed.

See the color map of this region on p. 133.
Hickman Creek watershed (051002-05-120)

**Geography.** The Hickman Creek watershed covers south-central Fayette County and northeastern Jessamine County. The land is in the Bluegrass physiographic region. The watershed lies mainly in the inner subregion of the Bluegrass, characterized by undulating terrain and moderate rates of both surface runoff and groundwater drainage. Part of the watershed south of Hickman Creek in Jessamine County lies in the hills of the bluegrass subregion, characterized by hilly terrain, very rapid surface runoff, and slow groundwater drainage. Most of the watershed lies above thick layers of easily dissolved limestone that form carbonate aquifers. Groundwater flows through channels in the limestone, so caves and springs are common in regions with this geology. Other areas lie above interbedded limestones and shales (>20% limestone, allowing groundwater flow where clay content is low).

**Waterways.** Hickman Creek empties into the Kentucky River at Camp Nelson (near US 27). Among the creeks that feed it are East Hickman Creek, Shelby Branch, West Hickman Creek, Wymers Branch, and Marshall Branch.

**Land and water use.** Land in the watershed is about 75% agricultural, almost 5% rural and wooded, almost 5% commercial or industrial, and 15% residential. Surface waters of the watershed contribute to the drinking water for Kentucky-American’s system, since the Lexington Reservoir and Lexington Reservoir No. 4 are located on West and East Hickman Creek, respectively. Four businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed include two that do not support all of their designated uses, based on biological and/or water-quality data. Two others only partially support uses. One is threatened. Pathogens and nutrients from urban runoff, storm sewers, and agricultural sources contribute to the impairment of these streams. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.


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Watershed Highlights

Watershed covers 101 square miles.
Contains Lexington reservoirs; water supply is an issue.
Part of source water protection zone 3 for Harrodsburg.
Lexington discharges sewage at W. Hickman; the plant was
required to remove excess phosphorus as of Aug. 2001.
Pathogens make contact recreation unsafe in two segments of
E. Hickman (6 mi. below Jacobsen Reservoir and 1.5 mi.
above golf course ponds; 1st priority TMDL 2002).
Pathogens partially impair contact recreation in W. Hickman
below sewage plant (3 mi.; 2nd priority TMDL 2002).
Aquatic life threatened in Hickman Cr. [2000 305(b)] and
partially impaired by overenrichment in W. Hickman
below reservoir 3 (8.4 miles; 2nd priority TMDL 2002).
Groundwater substantially more sensitive than basin average.
Livestock density substantially higher than basin average.
Jessamine County is in PRIDE region. PRIDE identified
588 straight pipes or failing septic systems there.
W. Hickman has a Watershed Watch Citizen Action Plan.

LEGEND

- Area of this watershed
- Sewage plants
- Public water supplies
- Other water withdrawals
- Locks & dams
- Cities and towns
- Rivers and larger streams
- Smaller streams
- County borders
Jessamine Creek watershed
(051002-05-130)

**Geography.** The Jessamine Creek watershed occupies central Jessamine County. The land is in the inner subregion of the Bluegrass physiographic region, which is characterized by undulating terrain and moderate rates of both surface runoff and groundwater drainage. The watershed lies above thick layers of easily dissolved limestone that form carbonate aquifers. Groundwater flows through channels in the limestone, so caves and springs are common in regions with this geology.

**Waterways.** Jessamine Creek empties into the Kentucky River between Polly’s Bend and Handys Bend, south of Wilmore. Among the creeks that feed it are Town Fork (Town Branch, Nicholasville) and Wilmore Town Branch.

**Land and water use.** Land in the watershed is more than 80% agricultural, almost 10% residential, and roughly 2% industrial, 2% commercial, and 4% rural and wooded. The surface waters of the watershed supply the drinking water for the municipal system in Wilmore. Six businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segment in this watershed fully supports its designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 40 square miles.
Part of source water protection zones 2 and 3 for Harrodsburg’s water system.
Wilmore, Jessamine Creek Environmental Control, and Nicholasville treatment plants discharge sewage into the watershed.
Water supply is an issue.
Groundwater is more sensitive than anywhere in the basin.
Livestock density is substantially higher than the basin average.
Watershed is in PRIDE service region. PRIDE identified 34 straight pipes or failing septic systems in the watershed. This is a Watershed Watch Citizen Action Plan watershed.

LEGEND
Area of this watershed

Sewage plants
Public water supplies
Other water withdrawals
Locks & dams
Cities and towns
Rivers and larger streams
Smaller streams
County borders

See the color map of this region on p. 133.
Kentucky River Palisades watershed (051002-05-140)

Geography. The Kentucky River Palisades watershed includes edges of Jessamine, Garrard, Mercer, Woodford, Anderson, and Franklin Counties. The land is in the inner subregion of the Bluegrass physiographic region, characterized by undulating terrain and moderate rates of both surface runoff and groundwater drainage. Most of the watershed lies above thick layers of easily dissolved limestone that form carbonate aquifers. Groundwater flows through channels in the limestone, so caves and springs are common in regions with this geology. Some areas lie above interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough).

Waterways. This watershed includes the Kentucky River from just below Lock and Dam Number 8 to the mouth of Benson Creek in Frankfort. Among the creeks that feed it within the watershed are Canoe Creek, Little Hickman Creek, White Oak Creek, Cedar Brook, Brushy Run, Landing Run, Craig Creek, Gilbert Creek, Clay Lick Creek, Bear Branch, Cedar Brook, Bailey Run, Cedar Run, Sharps Run, Vaughn Branch, and Little Benson Creek. Water from the Kentucky River near Valley View, Hickman Creek, Jessamine Creek, Clear Creek, Griers Creek, Glenns Creek, Dix River-Herrington Lake, and Shaker Creek watersheds also flows into this watershed.

Land and water use. Land in the watershed is two-thirds agricultural, one-fourth rural and wooded, and the remainder urban. Surface waters of the watershed supply drinking water for municipal systems in Frankfort, Wilmore, Versailles, Harrodsburg, and Lawrenceburg. Fourteen businesses and organizations hold permits for discharges into creeks. See the 2000 Assessment Report for full details.

Agency data assessment. The assessed creek segments in this watershed include one (Cedar Run) classified as threatened, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.


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Watershed Highlights

Watershed covers 164 square miles.
Provides drinking water for the cities of Harrodsburg, Wilmore, Versailles, Lawrenceburg, and Frankfort.
Water supply is an issue.
Cedar Run in Franklin County is classified as threatened [2000 305(b)].
Groundwater is substantially more sensitive than the basin average.
Livestock density is substantially higher than the basin average.
The Jessamine County portion of the watershed is in the PRIDE service region. PRIDE identified 76 straight pipes or failing septic systems in that part of the watershed.

See the color map of this region on p. 133.
Shaker Creek watershed (051002-05-210)

Geography. The Shaker Creek watershed covers east-central Mercer County. The land is in the inner subregion of the Bluegrass physiographic region, characterized by undulating terrain and moderate rates of both surface runoff and groundwater drainage. The watershed lies above thick layers of easily dissolved limestone that form carbonate aquifers. Groundwater flows through channels in the limestone, so caves and springs are common in regions with this geology.

Waterways. Shaker Creek empties into the Kentucky River just above Mundys Landing. Among the creeks that feed it is Shawnee Run.

Land and water use. Land in the watershed is 95% agricultural, and most of the rest is rural and wooded. One organization holds a permit for discharge into the creeks. See the 2000 Assessment Report for full details.

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

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Watershed Highlights

Watershed covers 26 square miles.
Groundwater is substantially more sensitive than the basin average.
Livestock density is substantially higher than the basin average.
Population without access to public sewers is substantially higher than the basin average.

See the color map of this region on p. 133.
Clear Creek watershed (051002-05-220)

**Geography.** The Clear Creek watershed covers northwest Jessamine County and southern Woodford County. The land is in the inner subregion of the Bluegrass physiographic region, characterized by undulating terrain and moderate rates of both surface runoff and groundwater drainage. The watershed lies above thick layers of easily dissolved limestone that form carbonate aquifers. Groundwater flows through channels in the limestone, so caves and springs are common in regions with this geology.

**Waterways.** Clear Creek empties into the Kentucky River just below Lock and Dam Number 6. Among the creeks that feed it are Tanners Creek, Spring Creek, and East Fork Clear Creek.

**Land and water use.** Land in the watershed is mainly agricultural; almost 5% is rural and wooded, and 2% is residential. One business holds a permit for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed include one designated as threatened, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 73 square miles.
Part of source water protection zone 3 for the Lawrenceburg and Versailles water systems.
An unnamed tributary of East Fork Clear Creek is classified as threatened [2000 305(b)].
Groundwater is substantially more sensitive than the basin average.
Livestock density is substantially higher than the basin average.
The Jessamine County portion of the watershed is in the PRIDE service region. PRIDE identified 52 straight pipes or failing septic systems in that part of the watershed.
This is a Watershed Watch Citizen Action Plan watershed.

See the color map of this region on p. 133.
Grierson Creek watershed (051002-05-230)

Geography. The Grierson Creek watershed is in west-central Woodford County. The land is in the inner subregion of the Bluegrass physiographic region, characterized by undulating terrain and moderate rates of both surface runoff and groundwater drainage. The watershed lies above thick layers of easily dissolved limestone that form carbonate aquifers. Groundwater flows through channels in the limestone, so caves and springs are common in regions with this geology.

Waterways. Grierson Creek empties into the Kentucky River just above Tyrone. Its several branches drain the area south of downtown Versailles.

Land and water use. Land in the watershed is about 80% agricultural, more than 10% rural and wooded, and the remainder residential, commercial, or industrial. Four businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

Agency data assessment. The assessed creek segment in this watershed only partially supports its designated uses, based on biological and/or water-quality data. A variety of factors contribute to the impairment of these streams. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.


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Watershed Highlights

Watershed covers 16 square miles.
Part of source water protection zones 1, 2, and 3 for the Lawrenceburg and Versailles water systems.
Aquatic life partially impaired by sedimentation, over-enrichment, and habitat alteration in Griers Creek from its mouth to an unnamed tributary 3.4 miles upstream (2nd priority TMDL 2002).
Groundwater is substantially more sensitive than the basin average.
Livestock density is substantially higher than the basin average.

LEGEND
Area of this watershed
Sewage plants
Public water supplies
Other water withdrawals
Locks & dams
Cities and towns
Rivers and larger streams
Smaller streams
County borders

See the color map of this region on p. 133.
Glenns Creek watershed (051002-05-240)

**Geography.** The Glenns Creek watershed occupies northwest Woodford County and a slice of Franklin County. The land is in the inner subregion of the Bluegrass physiographic region, which is characterized by undulating terrain and moderate rates of both surface runoff and groundwater drainage. Most of the watershed lies above thick layers of easily dissolved limestone that form carbonate aquifers. Groundwater flows through channels in the limestone, so caves and springs are common in regions with this geology. Some areas lie above interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough).

**Waterways.** Glenns Creek empties into the Kentucky River south of Frankfort, just above Interstate 64. Among the creeks that feed it are Camden Creek and Buck Run.

**Land and water use.** Land in the watershed is almost 85% agricultural, more than 5% rural and wooded, and about 10% residential or commercial. The surface waters of the watershed supply the drinking water for the municipal system in Versailles. Three businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segment in this watershed fully supports all of its designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.


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326
Watershed Highlights

Watershed covers 16 square miles.

Part of source water protection zones 1, 2, and 3 for the Frankfort water system.

Versailles discharges treated sewage into the watershed.

Water supply is an issue.

Groundwater is substantially more sensitive than the basin average.

Livestock density is substantially higher than the basin average.

This is a Watershed Watch Citizen Action Plan watershed.

LEGEND

Area of this watershed

Sewage plants

Public water supplies

Other water withdrawals

Locks & dams

Cities and towns

Rivers and larger streams

Smaller streams

County borders

See the color map of this region on p. 133.
Kentucky River Basin Management Plan
Elkhorn Creek Region
South Elkhorn Creek watershed
(051002-05-270)

Geography. The South Elkhorn Creek watershed covers western Fayette County, and northeastern Woodford County, and the southern edges of Scott and Franklin counties and a northern section of Jessamine County. The land is in the inner subregion of the Bluegrass physiographic region, characterized by undulating terrain and moderate rates of both surface runoff and groundwater drainage. The watershed lies above thick layers of easily dissolved limestone that form carbonate aquifers. Groundwater flows through channels in the limestone, so caves and springs are common in regions with this geology.

Waterways. South Elkhorn Creek empties into Elkhorn Creek at Forks of Elkhorn. Among the creeks that feed it are Vaughn’s Branch, Wolf Run, Steeles Run, Town Branch, Cave Creek, Shannon Run, Lee Branch, Beals Run, Buck Run, Hickman Branch, and Slickway Branch.

Land and water use. Land in the watershed is about 80% agricultural; the rest is urban, and almost 10% is residential. The watershed includes the University of Kentucky campus and downtown Lexington. Twenty-one businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

Agency data assessment. The assessed creek segments in this watershed include five that do not support some or all of their designated uses, based on biological and/or water-quality data. Three others only partially support their uses. Organic enrichment, alterations of flow and habitat, agricultural practices, municipal point sources, storm sewers, and urban runoff and pathogens all contribute to impairment of these streams. Total maximum daily load (TMDL) plans are in progress for Wolf Run and Town Branch. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

See the Watershed Plan for this watershed on page 24.


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Watershed Highlights

Watershed covers 179 square miles. Lexington (Town Br. plant) and Midway discharge sewage. Pathogens partially impaired contact recreation in Lees Br. [2000 305(b)]. Midway has built a new treatment plant there since the last DOW stream assessment of Lees Br. Pathogens make contact recreation unsafe in Town Br. and Wolf Run (TMDL under development).

Sediment impairs aquatic life in S. Elkhorn Cr. from Town Br. to Old Frankfort Pike (1st priority TMDL 2002).

Aquatic life partially impaired by nutrients and alteration of habitat and flow in Wolf Run and Town Br. (TMDLs in progress for these and the S. Elkhorn Cr. downstream).

Groundwater substantially more sensitive than basin average. Livestock density substantially higher than basin average. Town Br./Wolf Run and S. Elkhorn Cr. are (separately) two Watershed Watch Citizen Action Plan watersheds.

LEGEND

Area of this watershed

Sewage plants

Public water supplies

Other water withdrawals

Locks & dams

Cities and towns

Rivers and larger streams

Smaller streams

County borders

See the color map of this region on p. 135.
North Elkhorn Creek watershed  
(051002-05-280)

**Geography.** The North Elkhorn Creek watershed occupies southern Scott County, northern Fayette County, and part of western Franklin County. The land is in the Inner Bluegrass physiographic region, characterized by an undulating terrain and moderate rates of surface runoff and groundwater drainage. Most of the watershed lies above thick layers of easily dissolved limestone that form carbonate aquifers. Groundwater flows through channels in the limestone, so caves and springs are common in regions with this geology. Some areas lie above interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough).

**Waterways.** The North Elkhorn runs generally northwest from its origin at the west edge of Fayette County and empties into the Kentucky River just east of Frankfort. Among the creeks that feed it are David Fork, Goose Creek, Boyd Run, Miller Run, Lanes Run, Dry Run, Mc Cracken Creek, Blue Spring Branch, McConnell Run, and Lecomptes Run.

**Land and water use.** Land in the watershed is primarily agricultural, with several densely settled areas. Residential and commercial areas make up 10%. Less than 2% is forested. The watershed includes the north side of Lexington. Surface waters of the watershed supply drinking water for the municipal systems in Georgetown and Stamping Ground. Twenty-eight businesses and organizations hold permits for discharges into creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed include seven that do not support some or all of their designated uses, based on biological and/or water-quality data. Two others only partially support their uses. Agriculture, construction, and sewage from municipal systems and small package plants all contribute to the impairment of these streams via siltation, pathogens, habitat modification, and nutrient enrichment. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.


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II
Watershed Highlights

Watershed covers 276 square miles. Provides drinking water for Georgetown. Supply is an issue. Georgetown (sewage plants 1 and 2) and Stamping Ground discharge treated sewage into the watershed. Pathogens make contact recreation unsafe in N. Elkhorn Cr., Lanes Run, Cane Run, a tributary to Cane Run, and a tributary to Dry Run (1st priority TMDL 2002; TMDL under development for Cane Run above Ironworks Pike). Aquatic life impaired by overenrichment in Cane Run above Ironworks Pike, by sedimentation below US 62 bridge, and by both overenrichment and sedimentation between US 62 and Ironworks Pike (1st priority TMDL 2002). Aquatic life partially impaired by sedimentation, overenrichment in Dry and McConnell Runs. Aquatic life partially impaired by habitat alterations in N. Elkhorn Cr. between Avon Fk. and reservoir (2nd priority TMDL 2002). Groundwater substantially more sensitive than basin average.
Elkhorn Creek watershed (051002-05-290)

**Geography.** The Elkhorn Creek watershed covers northeast Franklin County. The land is in the inner subregion of the Bluegrass physiographic region, characterized by undulating terrain and moderate rates of both surface runoff and groundwater drainage. The watershed lies partly above thick layers of easily dissolved limestone that form carbonate aquifers. Groundwater flows through channels in the limestone, so caves and springs are common in regions with this geology. Other areas lie above interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough). Unconsolidated silts, sands, and gravels occur along the flood plain of the creek and on adjoining upland terraces.

**Waterways.** Elkhorn Creek empties into the Kentucky River in northern Franklin County. Among the creeks that feed it are Sulphur Lick Creek, Camp Pleasant Branch (Pleasant Branch), Gregory Branch, and Long Branch. Water also flows into the watershed from the South and North Elkhorn watersheds.

**Land and water use.** Land in the watershed is about 5% residential, 45% rural and wooded, and 50% agricultural. Four businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segment in this watershed does not support its designated uses. Pathogens from agricultural sources contribute to the impairment of the stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 38 square miles. Pathogens make contact recreation unsafe along the entire length of Elkhorn Creek (1st priority TMDL 2002). Groundwater is substantially more sensitive than the basin average.

See the color map of this region on p. 135.
Lower Kentucky River Region
Kentucky River watershed below Frankfort (051002-05-250)

**Geography.** The Kentucky River watershed below Frankfort occupies central Franklin County and extends along the border between Henry and Owen Counties. The land is in the hills of the bluegrass subregion of the Bluegrass physiographic region, characterized by hilly terrain, very rapid surface runoff, and slow groundwater drainage. Much of the watershed lies above thick layers of easily dissolved limestone that form carbonate aquifers. Groundwater flows through channels in the limestone, so caves and springs are common in regions with this geology. Other parts of the watershed lie over interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale). Still other areas are underlain by interbedded limestones and shales (>20% limestone, allowing groundwater flow where clay content is low). Unconsolidated silts, sands, and gravels occur in the river’s flood plain and adjoining upland terraces.

**Waterways.** This watershed includes the Kentucky River between the mouth of Benson Creek in Frankfort and the mouth of Eagle Creek at the Carroll County line. Among the creeks that feed it within the watershed are Barrel Branch, Stony Creek, Duvall Branch, Steeles Branch, Sand Ripple Creek, Stevens Creek, Pot Ripple Creek, Clay Lick Creek, Canes Run, Gullion Creek, and Little Twin Creek. Water from the Kentucky River Palisades, Benson Creek, Elkhorn Creek, Flat Creek, Cedar Creek, Severn Creek, Sixmile Creek, Drennon Creek, and Mill Creek & Big Twin Creek watersheds also flows into this watershed.

**Land and water use.** Land in the watershed is 45% agricultural and 45% rural and wooded; about 5% is residential. Five businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed include one that only partially supports its designated uses, because of pathogens. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.


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338
Watershed Highlights

Watershed covers 116 square miles.
Frankfort and Eminence discharge treated sewage into the watershed.
Pathogens partially impair contact recreation in 41 miles of the Kentucky River from Elkhorn Creek to Eagle Creek (2nd priority TMDL 2002).

See the color map of this region on p. 137.
Benson Creek watershed (051002-05-260)

**Geography.** The Benson Creek watershed covers southwest Franklin County, eastern Shelby County, and northern Anderson County. The land lies mainly in the hills of the bluegrass subregion of the bluegrass physiographic region, which is characterized by hilly terrain, very rapid rates of surface runoff, and slow rates of groundwater drainage. The eastern section of the watershed is in the inner bluegrass subregion, with moderate rates of both surface and groundwater drainage. Much of the watershed lies above interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough). Other parts of the watershed lie above thick layers of easily dissolved limestone that form carbonate aquifers: groundwater flows through channels in the limestone, so caves and springs are common in regions with this geology.

**Waterways.** Benson Creek empties into the Kentucky River at Frankfort. Among the creeks that feed it are North and South Benson Creek, Goose Creek, White Oak Creek, and Pigeon Creek.

**Land and water use.** Land in the watershed is 57% agricultural, 35% wooded, and 6% residential. Twenty-one businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed include one segment of Benson Creek that does not support its designated uses, based on biological and/or water-quality data. Five creek segments only partially support their uses, and two are categorized as threatened. Agricultural activities, construction, road runoff, failing septic systems, and runoff through storm sewers may contribute to the impairment of these streams. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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340
Watershed Highlights

Watershed covers 107 square miles.
Aquatic life impaired by sedimentation and alteration of habitat in Benson Creek between North Benson Creek and Goose Creek (1st priority TMDL 2002).
Aquatic life partially impaired by combinations of over-enrichment, sedimentation, and habitat alteration in Benson Creek between North and South Benson, in North Benson and the North Fork of North Benson, and in Goose Creek (2nd priority TMDL 2002).
South Benson and the upper reach of Benson Creek were classified as threatened [2000 305(b)].
This watershed is a 2002 priority area for the EQIP conservation cost-share program of NRCS (see page 104).
Flat Creek watershed (051002-05-300)

**Geography.** The Flat Creek watershed is in northwest Franklin County, with corners of Shelby and Owen counties. The land is in the hills of the bluegrass subregion of the Bluegrass physiographic region, characterized by hilly terrain, very rapid surface runoff, and slow groundwater drainage. Much of the watershed lies above thick layers of easily dissolved limestone that form carbonate aquifers. Groundwater flows through channels in the limestone, so caves and springs are common in regions with this geology. Other parts of the watershed lie over interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale). Still other areas are underlain by interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough).

**Waterways.** Flat Creek empties into the Kentucky River at the Franklin County-Owen County line, near Polsgrove. Among the creeks that feed it are Marshall Creek, Goose Creek, and Little Flat Creek.

**Land and water use.** Land in the watershed is more than 60% rural and wooded and almost 40% agricultural. No businesses or organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segment in this watershed only partially supports its designated uses, based on biological and/or water-quality data. Siltation and habitat alteration contribute to the impairment of the stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 23 square miles. Aquatic life partially impaired by sedimentation and habitat alteration in Flat Creek from its mouth to Marshalls Branch (2nd priority TMDL 2002).

See the color map of this region on p. 137.
Cedar Creek watershed (051002-05-310)

**Geography.** The Cedar Creek watershed covers southern Owen County and parts of northern Scott and Franklin Counties. The land is in the hills of the bluegrass subregion of the Bluegrass physiographic region, characterized by hilly terrain, very rapid surface runoff, and slow groundwater drainage. The watershed lies over interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough).

**Waterways.** Cedar Creek empties into the Kentucky River at Monterey, just below Lock and Dam Number 3. Among the creeks that feed it are Hall Branch, Elm Fork, Plummer Branch, Kays Branch, Indian Creek, McDowell Branch, Elk Lick Creek, Morgadore Creek, Bowen Branch, and Sawdriddle Creek.

**Land and water use.** Land in the watershed is almost two-thirds agricultural and about one-third rural and wooded. No businesses or organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed segments of Cedar Creek and Sawdriddle Creek in this watershed only partially support their designated uses, based on biological and/or water-quality data. Organic enrichment, siltation, and alteration of stream banks, streamside vegetation, and other aspects of the habitat contribute to the impairment of these streams. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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344
Watershed Highlights

Watershed covers 64 square miles.
Aquatic life partially impaired by sedimentation and over-enrichment in Cedar Creek between Sawdridge Creek and Indian Creek (2nd priority TMDL 2002).
Aquatic life partially impaired by sedimentation and over-enrichment in Sawdridge Creek from its mouth to Elk Lick (2nd priority TMDL 2002).
The potential for agricultural erosion is substantially higher than the basin average.
Severn Creek watershed (051002-05-320)

**Geography.** The Severn Creek watershed is in central Owen County. The land is in the hills of the bluegrass subregion of the Bluegrass physiographic region, which is characterized by hilly terrain, very rapid surface runoff, and slow groundwater drainage. Parts of the watershed lie over interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale). Other areas are underlain by interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough).

**Waterways.** Severn Creek empties into the Kentucky River between Locks 2 and 3, northeast of Lockport. Among the creeks that feed it are Slippery Rock Creek, Greenup Creek, North Severn Creek, and Mint Spring Branch. Elmer Davis Lake is located on North Severn Creek.

**Land and water use.** Land in the watershed is 4% residential, and the rest is about evenly divided between agricultural uses and rural and wooded area. The surface waters of the watershed supply the drinking water for the municipal system in Owenton. Two organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** Elmer Davis Lake only partially supports its designated uses, based on biological and/or water-quality data. Organic enrichment from agriculture contributes to the impairment of the lake. One segment of Severn Creek is classified as threatened. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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346
Watershed Highlights

Watershed covers 35 square miles.
Provides drinking water for Owenton.
Water supply is an issue.
One section of Severn Creek is classified as threatened by sedimentation [2000 305(b)].
Aquatic life in Elmer Davis Lake is partially impaired by overenrichment and low levels of dissolved oxygen.
The potential for agricultural erosion is substantially higher than the basin average.

See the color map of this region on p. 137.
Sixmile Creek watershed (051002-05-330)

**Geography.** The Sixmile Creek watershed covers southeast Henry County and northeast Shelby County, with a sliver of Franklin County. The higher, western portion of the watershed is in the outer subregion of the Bluegrass physiographic region, which is characterized by undulating terrain, moderate to rapid surface runoff, and moderate rates of groundwater drainage. The lower, eastern portion of the watershed is in the hills of the bluegrass subregion, characterized by hilly terrain, very rapid surface runoff, and slow groundwater drainage. Parts of the watershed lie over interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale). Other areas lie over interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough). Unconsolidated silts, sands, and gravels occur along the flood plain of the creek in Henry County.

**Waterways.** Sixmile Creek empties into the Kentucky River at Lockport. Among the creeks that feed it are Dutch Fork, Burger Fork, Indian Fork, Sweet Home Branch, Backbone Creek, Bantas Fork, Salt River, Little Sixmile Creek, Boyd Branch, Woodcocks Branch, Longs Branch, Joes Branch, and Hances Branch.

**Land and water use.** Land in the watershed is about half agricultural and half rural and wooded. Three businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** Of the three assessed creek segments in this watershed, Bantas Fork only partially supports its designated uses, based on biological and/or water-quality data. Habitat alteration and siltation contribute to the impairment of the stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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348
Watershed Highlights

Watershed covers 81 square miles. Aquatic life partially impaired by sedimentation and habitat alteration in Bantas Fork (2nd priority TMDL 2002). Livestock density is substantially higher than the basin average.

See the color map of this region on p. 137.
Drennon Creek watershed (051002-05-340)

**Geography.** The Drennon Creek watershed occupies central Henry County. The higher, southern portion of the watershed is in the outer subregion of the Bluegrass physiographic region, which is characterized by undulating terrain, moderate to rapid surface runoff, and moderate rates of groundwater drainage. The lower, northern portion of the watershed is in the hills of the bluegrass subregion, which is characterized by hilly terrain, very rapid surface runoff, and slow groundwater drainage. Parts of the watershed lie over interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale). Other areas are underlain by interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough). Unconsolidated silts, sands, and gravels occur along the flood plain of the creek.

**Waterways.** Drennon Creek empties into the Kentucky River east of Drennon Springs. Among the creeks that feed it are Town Creek, Rush Creek, Fivemile Creek, Flag Run, Emily Run, Martini Run, Holy Water Branch, Greens Fork, Boling Branch, and Sulphur Creek.

**Land and water use.** Land in the watershed is 75% agricultural, 20% rural and wooded, and less than 5% residential and commercial. Four businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed include two that do not support some or all of their designated uses, based on biological and/or water-quality data. One is classified as threatened. Siltation, organic enrichment, habitat alteration, and municipal point sources contribute to impairment of these streams. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.


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Watershed Highlights

Watershed covers 97 square miles.
New Castle discharges treated sewage into the watershed. Aquatic life partially impaired by sedimentation and over-enrichment in Sulphur Creek from its mouth to Greens Fork (2nd priority TMDL 2002).
Aquatic life partially impaired near the New Castle sewage plant (2nd priority TMDL 2002).
Drennon Creek from its mouth to Emily Run was classified as threatened [2000 305(b)].
Livestock density is substantially higher than the basin average.

See the color map of this region on p. 137.
Mill Creek & Big Twin Creek watershed
(051002-05-350)

**Geography.** The Mill Creek & Big Twin Creek watershed is in northwest Owen County. The land is in the hills of the bluegrass subregion of the Bluegrass physiographic region, characterized by hilly terrain, very rapid surface runoff, and slow groundwater drainage. Parts of the watershed lie over interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale). Other areas are underlain by interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough).

**Waterways.** Mill Creek empties into the Kentucky River just south of Perry Park. It drains the part of the watershed south of Highway 1982 (Squiresville Road). Big Twin Creek empties into the Kentucky River just north of Perry Park. It drains the part of the watershed north of Highway 1982. Among the creeks that feed it are Puncheon Camp Branch, Priors Branch, and South Fork Creek.

**Land and water use.** Land in the watershed is a bit more than half agricultural and a bit less than half rural and wooded. No businesses or organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed include one (Big Twin) that does not support some or all of its designated uses, based on biological and/or water-quality data. Siltation and habitat modification contribute to the impairment of the stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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352
Watershed Highlights

Watershed covers 53 square miles. Aquatic life partially impaired by sedimentation and habitat alteration in Big Twin Creek from its mouth to South Fork Creek (2nd priority TMDL 2002). The potential for agricultural erosion is substantially higher than the basin average.

See the color map of this region on p. 137.
Kentucky River mouth watershed (051002-05-420)

Geography. The Kentucky River mouth watershed covers central Carroll County, and includes bits of Henry County. The land is in the hills of the bluegrass sub-region of the Bluegrass physiographic region, which is characterized by hilly terrain, very rapid surface runoff, and slow groundwater drainage. Unconsolidated silts, sands, and gravels occur along the flood plain of the river and on adjoining upland terraces. Beneath this, parts of the watershed lie over interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale). Other areas lie over interbedded limestones and shales (>20% limestone, allowing groundwater flow where clay content is low enough).

Waterways. This watershed includes the Kentucky River from the mouth of Eagle Creek at the Carroll County line to the mouth of the Kentucky itself, where it flows into the Ohio River at Carrollton. Among the creeks that feed the river within the watershed are Goose Creek, Whites Run, and Majors Run. Water from the Kentucky River below Frankfort, Eagle Creek mouth, and Mill Creek watersheds also flows into this watershed.

Land and water use. Land in the watershed is almost 50% agricultural, more than 35% rural and wooded, and more than 10% residential and commercial. The surface waters of the watershed supply the drinking water for the municipal system in Carrollton. Eight businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

Agency data assessment. The assessed waters in this watershed include General Butler State Park Lake, which only partially supports its designated uses, based on biological and/or water-quality data indicating organic enrichment. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.


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Watershed Highlights

Watershed covers 36 square miles. Carrollton discharges treated sewage into the watershed. Aquatic life in General Butler State Park Lake is partially impaired by overenrichment and low levels of dissolved oxygen. The potential for agricultural erosion is substantially higher than the basin average.
Mill Creek watershed (051002-05-430)

**Geography.** The Mill Creek watershed covers southwestern Carroll County and north-central Henry County, with a sliver of Trimble County. The higher, Henry County portion of the watershed is in the outer subregion of the Bluegrass physiographic region, characterized by undulating terrain, moderate to rapid surface runoff, and moderate rates of groundwater drainage. The lower, Carroll County portion of the watershed is in the hills of the bluegrass subregion, characterized by hilly terrain, very rapid surface runoff, and slow groundwater drainage. Parts of the watershed lie over interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale). Other areas are underlain by interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough).

**Waterways.** Mill Creek empties into the Kentucky River east of English. Among the creeks that feed it are Long Branch, East Fork, West Fork, Gilgal Branch, Pryor Branch, and Lees Creek.

**Land and water use.** Land in the watershed is about 5% residential and commercial; the rest of the watershed is roughly equally divided between agricultural and rural and wooded land. No businesses or organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed include one (West Fork) that only partially supports its designated uses, based on biological and/or water-quality data. Siltation and stream modification contribute to the impairment of the stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 30 square miles. West Fork Mill Creek below Pryor Branch only partially supports aquatic life, because of sedimentation [2000 305(b)].

See the color map of this region on p. 137.
*Kentucky River Basin Management Plan*
Eagle Creek Region
Lytles Fork & Eagle Creek headwaters watershed (051002-05-360)

**Geography.** The Lytles Fork & Eagle Creek headwaters watershed covers northern Scott County and adjoining edges of Owen and Grant Counties. The land is in the hills of the bluegrass subregion of the Bluegrass physiographic region, which is characterized by hilly terrain, very rapid surface runoff, and slow groundwater drainage. The watershed lies mainly above interbedded limestones and shales (>20% limestone, allowing groundwater flow where clay content is low enough). Some of the watershed lies above thick layers of easily dissolved limestone that form carbonate aquifers: groundwater flows through channels in the limestone, so caves and springs are common in regions with this geology.

**Waterways.** This watershed constitutes the headwaters region of Eagle Creek. Lytles Fork and Eagle Creek join just over the Scott County line in Owen County, at which point the Eagle Creek above Tenmile Creek watershed begins. Among the creeks that feed Lytles Fork are Griffith Branch, Hess Branch, Longlick Branch, and Little Indian Branch. Among the creeks that feed Eagle Creek in this watershed are Muddy Branch, Sharon Branch, Rogers Creek, West Fork Eagle Creek, East Fork Eagle Creek, Straight Fork, Hall Branch, Little Eagle Creek, Mile Run, and Rays Fork.

**Land and water use.** Land in the watershed is more than 50% agricultural and more than 40% rural and wooded. Ten businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed segment of Eagle Creek fully supports its designated uses, based on biological and/or water-quality data. The assessed segment of Lytles Fork only partially supports its designated uses, based on biological and/or water-quality data. Habitat alteration contributes to impairment of the stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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360
Watershed Highlights

Watershed covers 119 square miles.
Sadieville discharges treated sewage into the watershed.
Aquatic life partially impaired by habitat alteration in
Lyttles Fork from its mouth to Hess Branch (2nd priority
TMDL 2002).
Livestock density is substantially higher than the basin
average.

See the color map of
this region on p. 139.
Eagle Creek watershed above Tenmile Creek (051002-05-370)

**Geography.** The Eagle Creek above Tenmile Creek watershed covers western Grant County and eastern Owen County, and includes part of Scott County as well. The land is in the hills of the bluegrass subregion of the Bluegrass physiographic region, characterized by hilly terrain, very rapid surface runoff, and slow groundwater drainage. The watershed lies above interbedded limestones and shales (>20% limestone, allowing groundwater flow where clay content is low enough).

**Waterways.** This watershed includes the section of Eagle Creek between the mouth of Lytles Fork (just over the Scott County line in Owen County) and the mouth of Tenmile Creek close to Folsom in Grant County. Among the creeks that feed it are Caney Creek, Red Oak Creek, Dickey Fork, Paynes Run, Elk Creek, Three Forks Creek, Musselman Creek, Grassy Run, Straight Fork Creek, and Statlers Run. The watershed also receives the water from the Lytles Fork & Eagle Creek headwaters, Clarks Creek, and Brush Creek watersheds.

**Land and water use.** Land in the watershed is more than 50% agricultural and more than 40% rural and wooded; residential areas make up 3%. Six businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The fourteen assessed creek segments in this watershed include one that does not support its designated uses, based on biological and/or water-quality data. Seven others only partly support their uses. Siltation, nutrient and organic enrichment, and habitat modifications contribute to the impairment of these streams. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 187 square miles. Contains reservoir for Elk Lake Water Company. Owenton discharges treated sewage into the watershed. Aquatic life is impaired by Rattlesnake Creek [unspecifed sources; 2000 305(b)]. Aquatic life partially impaired by sedimentation and overenrichment in Eagle Creek between Brush Creek and Clarks Creek and between Three Forks Creek and Elk Creek (2nd priority TMDL 2002). Aquatic life partially impaired in Three Forks Creek by sedimentation, in Stevens Creek by sedimentation and overenrichment, in Elk Creek by sedimentation, in Richland Creek by sedimentation and flow alteration, and in Grassy Run by salinity (2nd priority TMDL 2002). The potential for agricultural erosion is substantially higher than the basin average.

LEGEND

Area of this watershed

Sewage plants

Public water supplies

Other water withdrawals

Locks & dams

Cities and towns

Rivers and larger streams

Smaller streams

County borders

See the color map of this region on p. 139.
Clarks Creek watershed (051002-05-380)

**Geography.** The Clarks Creek watershed covers central Grant County. The land is in the hills of the bluegrass subregion of the Bluegrass physiographic region, characterized by hilly terrain, very rapid surface runoff, and slow groundwater drainage. Parts of the watershed lie over interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale). Other areas are underlain by interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough).

**Waterways.** Clarks Creek empties into Eagle Creek at northeast of Jonesville. Among the creeks that feed Clarks Creek are Steammill Branch, Panther Run, Williams Branch, Clay Lick, and Jacks Lick.

**Land and water use.** Land in the watershed is about 70% agricultural, 20% rural and wooded, and 10% residential or commercial. Three businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed include one (Steammill Branch) that only partially supports its designated uses, based on biological and/or water-quality data. Un-ionized ammonia from municipal point sources contributes to the impairment of the stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 32 square miles. Williamstown discharges treated sewage into the watershed. Aquatic life partially impaired near the Williamstown sewage treatment plant [2000 305(b)]. The potential for agricultural erosion is substantially higher than the basin average.
Tenmile Creek watershed (051002-05-390)

**Geography.** The Tenmile Creek watershed occupies northwestern Grant County and adjacent corners of Gallatin, Boone, and Kenton Counties. The land is in the hills of the bluegrass subregion of the Bluegrass physiographic region, which is characterized by hilly terrain, very rapid surface runoff, and slow groundwater drainage. The watershed lies partly above thick layers of easily dissolved limestone that form carbonate aquifers. Groundwater flows through channels in the limestone, so caves and springs are common in regions with this geology. Other areas lie above interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough).

**Waterways.** Tenmile Creek empties into Eagle Creek close to Folsom. Among the creeks that feed it are Kittle Run, Bullock Run, Sulphur Lick Branch, North Fork, Little Tenmile Creek, Arnolds Creek, Flat Creek, and Napoleon Branch.

**Land and water use.** Land in the watershed is about 60% agricultural, 30% rural and wooded, and 10% residential or commercial. The surface waters of the watershed supply the drinking water for the Bullock Pen Water District. Five businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segments in this watershed include one (Arnolds Creek) that only partially supports its designated uses, based on biological and/or water-quality data. Siltation contributes to the impairment of the stream. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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Watershed Highlights

Watershed covers 68 square miles. Contains reservoir for Bullock Pen Water District. Aquatic life partially impaired by sedimentation in Arnolds Creek from its mouth to an unnamed tributary 10.8 miles upstream. (2nd priority TMDL 2002). The potential for agricultural erosion is substantially higher than the basin average. Population without access to public sewers is substantially higher than the basin average.

LEGEND

Area of this watershed

Sewage plants

Public water supplies

Other water withdrawals

Locks & dams

Cities and towns

Rivers and larger streams

Smaller streams

County borders

See the color map of this region on p. 139.
Brush Creek watershed (051002-05-400)

**Geography.** The Brush Creek watershed covers northeastern Owen County and an edge of Grant County. The land is in the hills of the bluegrass subregion of the Bluegrass physiographic region, characterized by hilly terrain, very rapid surface runoff, and slow groundwater drainage. Parts of the watershed lie over interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale). Other areas are underlain by interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough).

**Waterways.** Brush Creek empties into Eagle Creek just over the Owen County line in Grant County, north of Jonesville. Among the creeks that feed it are Sand Lick Branch, Rudder Branch, Slab Lick Branch, Long Branch, and Buffalo Branch.

**Land and water use.** Land in the watershed is more than 75% agricultural and about 25% rural and wooded. No businesses or organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

**Agency data assessment.** The assessed creek segment in this watershed fully supports all its designated uses, based on biological and/or water-quality data. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

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<th>Watershed Protection Rank</th>
<th>Overall Watershed Rank</th>
<th>Framework Mobilization Category</th>
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<td><strong>Combined Rank</strong></td>
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Watershed Highlights

Watershed covers 25 square miles. The potential for agricultural erosion is substantially higher than the basin average.

See the color map of this region on p. 139.
Eagle Creek mouth watershed
(051002-05-410)

Geography. The Eagle Creek mouth watershed begins in Grant County and covers southeast Carroll, southwest Gallatin, and northern Owen County. The land is in the hills of the bluegrass subregion of the Bluegrass physiographic region, which is characterized by hilly terrain, very rapid surface runoff, and slow groundwater drainage. Parts of the watershed lie over interbedded shales and limestones (these are 20% limestone; water conduction is poor because of the clay content of the shale). Other areas are underlain by interbedded limestones and shales (>20% limestone, allowing groundwater flow where the clay content is low enough). Unconsolidated silts, sands, and gravels occur along the flood plain of the creek.

Waterways. This watershed includes the section of Eagle Creek between the mouth of Tenmile Creek (near Folsom in Grant County) and the confluence of Eagle Creek with the Kentucky River southwest of Worthville at the corner of Carroll, Owen, and Henry Counties. Among the creeks that feed it in this watershed are Indian Camp Creek, Moseby Branch, Hodge Branch, Lost Branch, Ellis Creek, Goose Creek, Lick Creek, Indian Creek, Buffalo Creek, and Buck Run. The watershed also receives water from the Tenmile Creek and Eagle Creek above Tenmile Creek watersheds.

Land and water use. Land in the watershed is almost 60% agricultural, about 35% rural and wooded, and more than 5% residential and commercial. Three businesses and organizations hold permits for discharges into the creeks. See the 2000 Assessment Report for full details.

Agency data assessment. The nine assessed creek segments in this watershed include two that do not support some or all of their designated uses, based on biological and/or water-quality data. Two others only partially support their uses. Siltation, pathogens, and alteration of flow and other stream features contribute to the impairment of these streams. See the 2000 Assessment Report or 2000 305(b) list and the 2002 303(d) list of impaired streams for full details.

See the Watershed Plan for this watershed on page 44.


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Watershed Highlights

Watershed covers 88 square miles.
Pathogens make contact recreation unsafe in Eagle Creek between Twomile Creek and Tenmile Creek (TMDL under development).
Aquatic life impaired by sedimentation in the lowest 0.9 miles of Buck Run (1st priority TMDL 2002).
Aquatic life impaired by alteration of flow and habitat in Moseby Branch [2000 305(b)].
Aquatic life partially impaired by sedimentation and habitat alteration in Lick Creek (2nd priority TMDL 2002).
Aquatic life partially impaired by flow alteration in Twomile Creek (2nd priority TMDL 2002).
The potential for agricultural erosion is substantially higher than the basin average.

See the color map of this region on p. 139.
Kentucky River Basin Management Plan