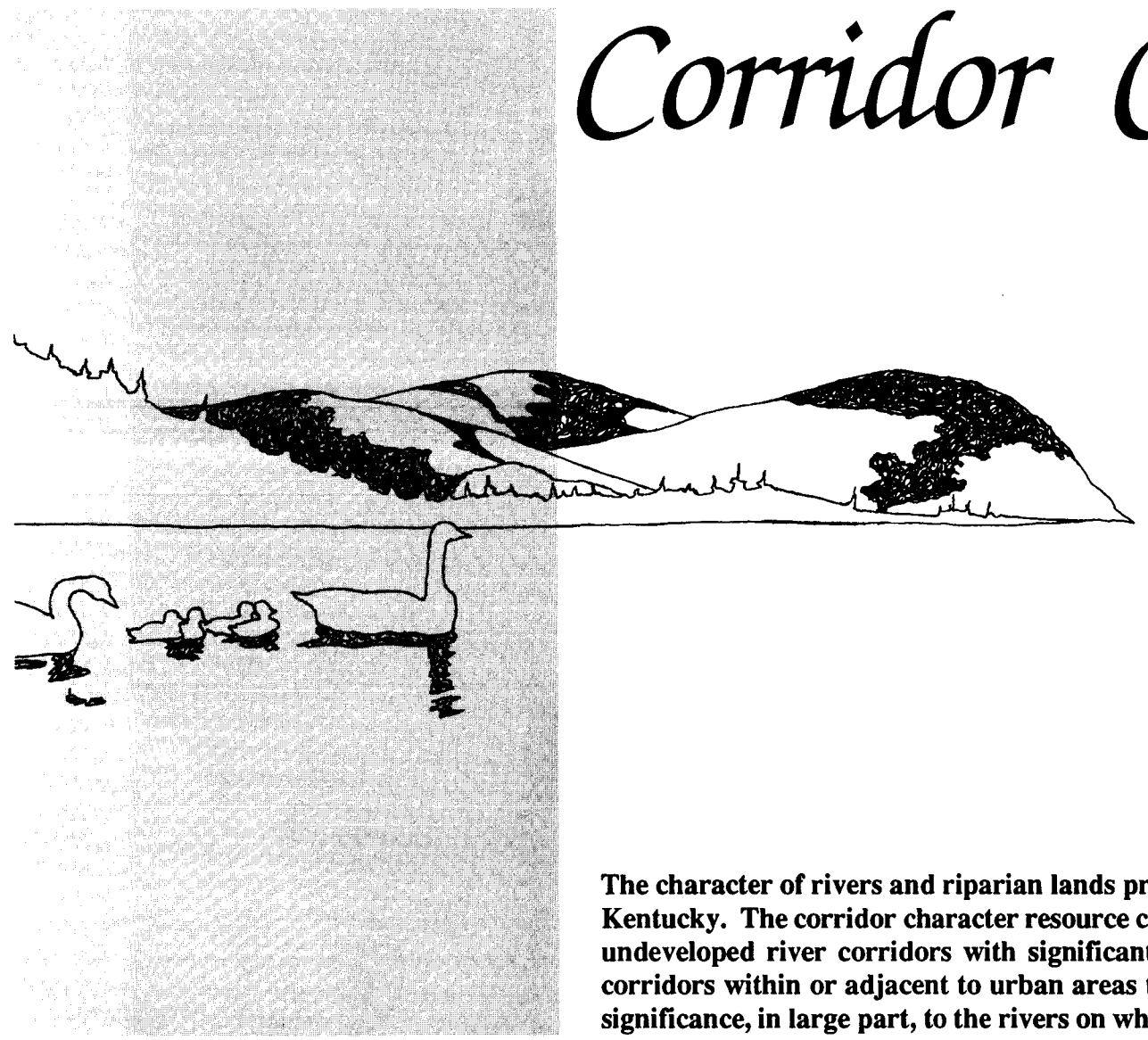
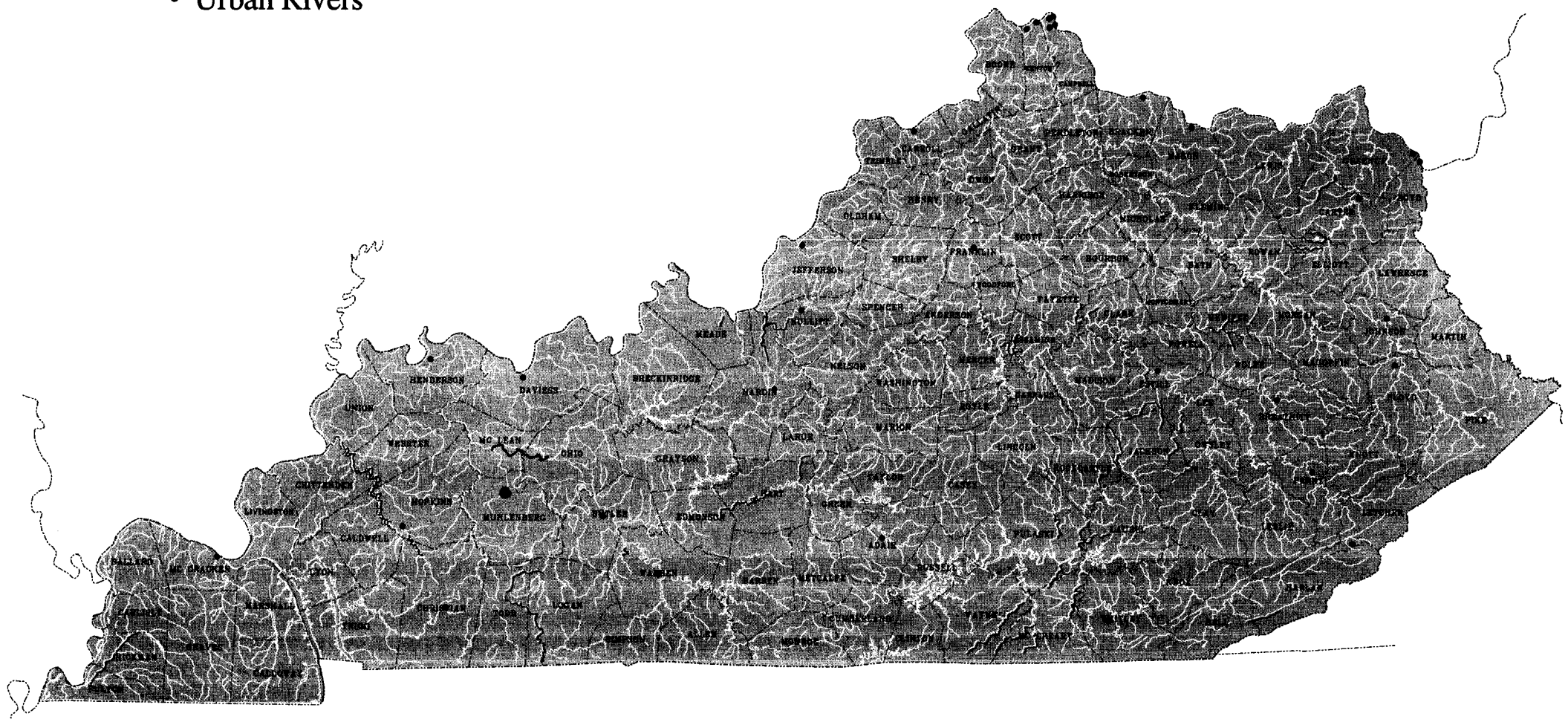
# Corridor Character



**The character of rivers and riparian lands provide important resource values to the people of Kentucky. The corridor character resource category represents two extremes of a continuum: undeveloped river corridors with significant natural resource quality and those developed corridors within or adjacent to urban areas that owe their historical, cultural, and economic significance, in large part, to the rivers on which they were founded.**

# *Corridor Character Study Rivers*

〰 Undeveloped Rivers
• Urban Rivers



## UNDEVELOPED RIVERS

Kentucky rivers and streams that exhibit a high degree of natural character, scenic beauty, and resource integrity have little or no development along their banks. Free-flowing rivers or streams and their adjacent undeveloped lands represent some of the most significant natural areas in the state, providing quality habitat for fish, wildlife, and plants; high water quality; and a variety of outstanding primitive recreational opportunities.

## EVALUATION METHODOLOGY

The identification and evaluation of undeveloped rivers were based on the relative degree of development within a defined corridor that included a viewed area extending 2,000 feet from each river bank. River corridors with little or no development were determined to be of highest significance, while those corridors that contained developed areas were determined to be of lower significance. Each study river included within the undeveloped rivers subcategory of corridor character met one or more of the following **minimum standards:**

- minimum length of five miles or a headwater stream of any length
- free of significant impoundments, hydrologic modifications, or diversions
- river corridors essentially undeveloped with an overall natural character

A rating system was devised that assigned point values to various kinds of development typically encountered along rivers in Kentucky. Point values were assigned as follows:

| | |
|---|---|
| Primitive features with minimal visual intrusion into the landscape (eg. hiking trail, footbridge, unmaintained road) | 1 -5 points |
| Limited extent, short-term features (eg. picnic area, small boat dock, discharge pipe) | 6 - 10 points |
| Moderate extent, long-term features with partial modification to the landscape (eg. residence, state road bridge, cropland) | 11- 15 points |
| Moderate extent, long-term features with extensive modification of the landscape (eg. marina, small industry, interstate highway bridge) | 16 - 20 points |

Within each mile of river, development was identified along with the appropriate numeric score. This permitted the identification of segments having the least or most development for delineation of those segments with relatively consistent levels of development. The river mile scores were then summed and divided by the total number of river miles for an overall score reflecting an average score per mile. Rivers with scores greater than 50 did not meet the minimum standards for undeveloped rivers and were disqualified. Based on completed scores, study rivers were divided into three value classes with Class 1 containing the most significant undeveloped rivers.

**Class 1** .....1 - 7 points

**Class 2** .....8 - 25 points

**Class 3** .....26 - 50 points

It should be noted that in many cases topographic maps were out-dated and their accuracy questionable. Aerial photos would have been helpful, but there was insufficient time for their use in the evaluation.

## FINDINGS

A total of 52 segments (3.8% of the rivers studied) covering 667.0 miles (1.7% of the total

miles studied) were evaluated in the Undeveloped Rivers subcategory. Undeveloped Rivers ranged in length from 2.8 miles (Raven Run) to 65.4 miles (Tradewater River). Shorter segments tended to have higher class rankings than longer segments. In some cases, it was possible to raise the ranking one or two classes by deleting portions with more intensive development, resulting in shorter segments with higher rankings.

A significant portion of all undeveloped rivers presently receive some degree of special resource management or protection, emphasizing the role played by state and federal agencies. Those located within a national forest are managed primarily for timber production and recreation and tend to have less developed corridors than rivers in private ownership. The highest form of protection is inclusion within a state or federal wild and scenic river system. Designation as a Kentucky Wild River controls the level and extent of new development commensurate with the protection of outstanding natural, cultural and recreational resources. (Appendix A contains a listing of designated Kentucky Wild Rivers.) Federal designation controls development on federally owned lands and may authorize federal land acquisition to improve the effectiveness of resource management efforts. In Kentucky, wild and scenic rivers are automatically classified as Outstanding Resource Waters, providing an additional level of protection.

Class 1 streams are located primarily on public lands, and the protection they receive is the main reason for such classification. The least-developed rivers include Difficulty Creek, Marsh Creek, Troublesome Creek, and Beaver Creek (McCreary County).

Eight rivers covering 49.1 miles were identified as Class 1 undeveloped rivers. Class 1 rivers ranged in length from 3.5 to 11.9 miles, averaging 6.1 miles. All are located in the eastern half of the state, in the Cumberland Plateau and Cumberland Mountain physiographic regions. Portions or entire segments of seven (88%) of the rivers occur within a national park or forest, and five (62%) segments presently are protected by some type of formal state or federal designation restricting development within their corridors (Table 7).

Kentucky River

Scott Hankla

**Table 7. Status of Protected Class 1 Undeveloped Rivers**

| River Segment | Protection Status |
|---|---|
| Bad Branch | Kentucky Wild River |
| Beaver Creek | Federal Wilderness Area |
| Cane Creek | Kentucky Wildlife Area |
| Chimney Top Creek | Red River National Natural Landmark |
| Difficulty Creek | National River and Recreation Area |
| Dog Slaughter Creek | Lower portion is a Kentucky Wild River |
| Marsh Creek | Authorized study river under the Federal Wild and Scenic Rivers Act, temporary protection |
| Troublesome Creek | National River and Recreation Area |

Twenty-six rivers covering 300 miles were identified as Class 2 undeveloped rivers. Class 2 rivers ranged in length from 2.9 to 36.5 miles, averaging 11.5 miles. Class 2 rivers are located throughout the state.

A total of 13 (50%) Class 2 rivers are located within a national park or forest, and 8 (31%) are presently protected through corridor designation at the state or federal level or occur within specially designated areas. Jessamine Creek is partially protected by The Nature Conservancy as a private nature preserve. Table 8 lists those Class 2 rivers protected by formal federal or state designation.

**Table 8. Status of Protected Class 2 Undeveloped Rivers**

| River Segment: | Protection Status |
|---|---|
| Big South Fork | National Recreation Area; Kentucky Wild River |
| Clifty and Osborne Creeks | Federal Wilderness Area |
| Cooperas Creek | National Natural Landmark |
| Cumberland River | Kentucky Wild River; authorized study river under the Federal Wild and Scenic River Act, temporary protection |
| Green River | National Park; Kentucky Wild River |
| Martins Fork | Kentucky Wild River; National Historic Park |
| Red River | Federal Wilderness Area; Kentucky Wild River; National Natural Landmark; Geologic Area |
| Rockcastle River | Kentucky Wild River; authorized study river under the National Wild and Scenic Rivers Act, temporary protection |
| Station Camp Creek and War Fork | Authorized study river under the Federal Wild and Scenic Rivers Act, temporary protection |
| Swift Camp Creek | National Natural Landmark |

Eighteen rivers covering 317.9 miles were identified as Class 3 undeveloped rivers. These rivers ranged in length from 2.8 to 65.4 miles, averaging 17.7 miles. Six of these rivers (33%) are located within a national park or forest, and 3 (8.6%) have some form of protective corridor designation at the state or federal level. Raven Run is within a private nature preserve. Table 9 lists those Class 3 rivers protected by federal or state designation.

**Table 9. Status of Protected Class 3 Undeveloped Rivers**

| River Segment | Protection Status |
|---|---|
| Little South Fork | Kentucky Wild River; authorized study river under the Federal Wild and Scenic Rivers Act, temporary protection |
| South Fork Station Camp Creek | National Wild and Scenic study river |
| Rock Creek | Kentucky Wild River; authorized study river under the Federal Wild and Scenic Rivers Act, temporary protection |

**Table 10. Summary of Undeveloped River Evaluations**

| | Class 1 | Class 2 | Class 3 | Total |
|---|---|---|---|---|
| Number of Segments | 8 | 26 | 18 | 52 |
| Miles | 49.1 | 300 | 317.9 | 667.0 |

## URBAN RIVERS

While the majority of rivers in Kentucky flow through rural landscapes composed of agricultural lands and forested mountains, there also exist a number of river corridors that lie within or adjacent to urban areas. These urban river corridors serve a broad spectrum of uses, ranging from heavy industry to sensitive wildlife habitat areas. Their proximity to population centers and diverse character present special opportunities for community revitalization and the enhancement of recreational use, natural and cultural resources, and overall public use and enjoyment.

## EVALUATION METHODOLOGY

The evaluation of urban rivers was based on the physical characteristics of the river, existing and potential access, and existing and potential shoreline character. Those river segments with the greatest variety and number of such characteristics were determined to be of greatest value to the adjacent community. To be included in the evaluation process, each river selected was required to meet the following **minimum standards:**

- minimum length of one mile
- river flows through or within 1/4 mile of communities with a population of 2,500 or more
- cultural or historical significance
- orientation of community toward the river as a focal point

The evaluation of urban rivers was based on the completion of survey forms using the following criteria by Kentucky Division of Water and Area Development District staffs:

Use opportunities and suitabilities with respect to pool or flow consistency, river width, and water quality (high, 30 points; medium, 20 points; low, 10 points).

Existing river access for boating, fishing, and viewing (high, 30 points; medium, 20 points; low, 10 points).

Potential river access for boating, fishing, and viewing (high, 15 points; medium, 10 points; low, 5 points).

Existing natural, cultural, or historical character and amenities; open space; community orientation to river (high, 30 points; medium, 20 points; low, 5 points).

Potential for improvement or restoration of shoreline quality (high, 15 points; medium, 10 points; low, 5 points).

Where a ranking fell between high and medium or medium and low for a criterion, the points were adjusted accordingly (e.g., medium-high = 25 points). The points were then added to establish a total score for each river, the highest possible score being 120. Rivers with scores of less than 50 were disqualified. The study rivers were then ranked into three value classes.

**Class 1** .....100 - 120 points

**Class 2** .....70 - 99 points

**Class 3** .....50 - 69 points

## FINDINGS

A total of 36 segments (2.6% of the rivers studied in the assessment) covering 154.4 miles (0.4% of the total miles studied in the assessment) of urban rivers were assessed. The length of urban river segments ranged from 1.0 to 13.2 miles in length, with an average of 4.3 miles. It is significant to note that many of the largest urban areas in the state are highly river-oriented, underscoring the value of rivers as community assets.

A total of seven river segments (19% of those studied in this subcategory) covering 34 miles

(22%) were ranked as Class 1. The average length of Class 1 rivers was 4.9 miles. These segments were generally located in the central and western parts of the state. They included the largest rivers in the state, a notable exception being the Mississippi River. Ohio River segments accounted for 78 percent of Class 1 rivers. Class 1 rivers were given high scores for all criteria reflecting potential quality and for physical character of the water. Water quality was the main factor preventing any river from attaining a perfect score of 120.

A total of 17 river segments covering 56.4 miles were ranked as Class 2, averaging 3.3 miles in length. The majority (eight segments or 47%) were Ohio River segments. Only two segments, both on the Cumberland River, occur in southeastern Kentucky. The majority of Class 2 rivers evaluated had medium scores for existing physical character, access, and shoreline quality, but were believed to have good potential for improvement.

A total of 12 river segments covering 64 miles were ranked as Class 3, averaging 5.3 miles in length. Class 3 rivers were generally smaller order streams and did not score as high for physical water character. In addition, most had low scores for river access and limited potential for improvement of shoreline quality.

**Table 11. Summary of Urban River Evaluation**

| | Class 1 | Class 2 | Class 3 | Total |
|---|---|---|---|---|
| Number of Segments | 7 | 17 | 12 | 36 |
| Miles | 34 | 56.4 | 64 | 154.4 |

## SOURCES OF INFORMATION

**Undeveloped Rivers**

Kentucky Transportation Cabinet, County Maps

U.S. Department of the Interior, *Nationwide Rivers Inventory*, National Park Service, Washington, D.C. 1982.

U.S. Department of the Interior, 7.5 Minute Series Maps (Topographic), various quadrangles, U.S. Geological Survey.

**Urban Rivers**

U.S. Department of the Interior, 7.5 Minute Series Maps (Topographic), various quadrangles, U.S. Geological Survey.

Kentucky Department for Environmental Protection, *Kentucky Water Quality Report to Congress*, Kentucky Division of Water, Frankfort, Kentucky, 1988.

Kentucky Department for Environmental Protection, Survey Forms and Personal Communications, Area Development Districts and Division of Water Field Offices, 1990

Big South Fork Cumberland River

Fred Kirchhoff

## CORRIDOR CHARACTER (Undeveloped) -- CLASS 1 RIVERS

| River Name | Downstream Endpoint | River Mile | Upstream Endpoint | River Mile | Downstream County | Upstream County | Study Length |
|---|---|---|---|---|---|---|---|
| Bad Branch | Ky 932 | 0.2 | Headwaters | 4.1 | Letcher | Letcher | 3.9 |
| Beaver Creek | Lake Cumberland | 2.2 | Headwaters | 9.2 | McCreary | McCreary | 7.0 |
| Cane Creek | Rockcastle River | 0.0 | Headwaters | 12.0 | Laurel | Laurel | 12.0 |
| Chimney Top Creek | Red River | 0.0 | Headwaters | 5.0 | Wolfe | Wolfe | 5.0 |
| Difficulty Creek | Big South Fork Cumberland River | 0.0 | Headwaters | 3.5 | McCreary | McCreary | 3.5 |
| Dog Slaughter Creek | Cumberland River | 0.0 | Headwaters | 5.4 | Whitley | Whitley | 5.4 |
| Marsh Creek | Cumberland River | 0.0 | Laurel Creek | 8.6 | McCreary | McCreary | 8.6 |
| Troublesome Creek | Big South Fork Cumberland River | 0.0 | Headwaters | 3.7 | McCreary | McCreary | 3.7 |

## CORRIDOR CHARACTER (Undeveloped) -- CLASS 2 RIVERS

| River Name | Downstream Endpoint | River Mile | Upstream Endpoint | River Mile | Downstream County | Upstream County | Study Length |
|---|---|---|---|---|---|---|---|
| Archers Creek | Cumberland River | 0.0 | Headwaters | 3.2 | Whitley | Whitley | 3.2 |
| Big Caney Creek | Grayson Lake | 2.2 | Headwaters | 15.0 | Elliott | Elliott | 12.8 |
| Big South Fork Cumberland R. | Three West Hollow | 44.9 | Tennessee State Line | 55.2 | McCreary | McCreary | 10.3 |
| Boone Creek | Kentucky River | 0.0 | Ky 418 | 6.5 | Clark | Clark | 6.5 |
| Clifty Creek and Osborne Br. | Red River | 0.0 | Headwaters | 4.0 | Menifee | Menifee | 4.0 |
| Copperas Creek | Red River | 0.0 | Headwaters | 4.0 | Menifee | Menifee | 4.0 |
| Cumberland River | Rock Branch | 557.3 | Cane Creek | 572.8 | McCreary | Whitley | 15.5 |
| Cypress Creek | Obion Creek | 30.1 | Obion Creek Canal | 41.7 | Hickman | Hickman | 11.6 |
| Gladie Creek | Red River | 0.0 | Headwaters | 7.2 | Menifee | Menifee | 7.2 |
| Green River | Echo River | 197.2 | I-65 | 222.6 | Edmonson | Hart | 25.4 |
| Jessamine Creek | Kentucky River | 0.0 | Leatherwood Branch | 4.4 | Jessamine | Jessamine | 4.4 |
| Kentucky River | Dix River | 118.2 | White Oak Creek | 133.3 | Jessamine | Garrard | 15.1 |
| Laurel Creek | Little Sandy River | 0.0 | Headwaters | 13.5 | Elliott | Rowan | 13.5 |
| Little Caney Creek | Ky 504 (Grayson Lake) | 0.2 | Ky 649 | 8.3 | Elliott | Elliott | 8.1 |
| Martins Fork & Left Fork | Daniel Branch | 25.0 | Headwaters(Cumberland Gap) | 37.2 | Harlan | Bell | 12.2 |

| River Name | Downstream Endpoint | River Mile | Upstream Endpoint | River Mile | Downstream County | Upstream County | Study Length |
|---|---|---|---|---|---|---|---|
| Mill Creek | Salt River | 0.0 | Fort Knox Boundry | 19.0 | Hardin | Hardin | 19.0 |
| Obion Creek | River Mile 1.3 | 1.3 | Cypress Creek | 37.8 | Fulton | Hickman | 36.5 |
| Red River | Schoolhouse Branch | 50.0 | Ky 746 | 68.6 | Powell | Wolfe | 18.6 |
| Rockcastle River | Lake Cumberland | 8.5 | Ky 80 | 22.1 | Laurel | Laurel | 13.6 |
| Rocky Clifty Creek | Lake Malone | 21.3 | Headwaters | 26.0 | Todd | Todd | 4.7 |
| Salt River | Pond Creek | 0.5 | Long Lick | 18.3 | Bullitt | Bullitt | 17.8 |
| Shillalah Creek | Ky 217 | 0.2 | Headwaters | 5.4 | Bell | Bell | 5.2 |
| Station Camp Creek | Estill/Jackson County Line | 19.4 | War Fork | 22.3 | Estill | Jackson | 2.9 |
| Swift Camp Creek | Red River | 0.0 | Rock Bridge | 10.0 | Wolfe | Wolfe | 10.0 |
| Tradewater River | Cypress Creek | 7.2 | US 60 | 15.1 | Crittenden | Crittenden | 7.9 |
| War Fork Station Camp Creek | Station Camp Creek | 0.0 | Guys Branch | 10.0 | Jackson | Jackson | 10.0 |

## CORRIDOR CHARACTER (Undeveloped) -- CLASS 3 RIVERS

| River Name | Downstream Endpoint | River Mile | Upstream Endpoint | River Mile | Downstream County | Upstream County | Study Length |
|---|---|---|---|---|---|---|---|
| Brushy Fork | Lynn Camp Creek | 0.0 | Headwaters | 6.6 | Hart | Hart | 6.6 |
| Buck Creek | Ky 192 | 12.3 | Ky 80 | 25.0 | Pulaski | Pulaski | 12.7 |
| Clifty Creek | Wolf Lick Creek | 0.0 | Headwaters | 20.4 | Logan | Todd | 20.4 |
| Doe Run | Doe Run Lake | 4.0 | Headwaters | 8.0 | Meade | Meade | 4.0 |
| Emily Run | Drennon Creek | 0.0 | New Cut Road | 4.6 | Henry | Henry | 4.6 |
| Gasper River | Barren River | 0.0 | Green River Parkway | 7.6 | Warren | Warren | 7.6 |
| Horse Lick Creek | Rockcastle River | 0.0 | Headwaters | 21.2 | Jackson | Jackson | 21.2 |
| Little South Fork Cumberland R | Freedom Church Ford | 5.5 | Tennessee State Line | 43.7 | McCreary | Wayne | 38.2 |
| Lower Howards Creek | Kentucky River | 0.0 | Old Stone Church Road | 4.8 | Clark | Clark | 4.8 |
| Lynn Camp Creek | Green River | 0.0 | Headwaters | 12.9 | Hart | Larue | 12.9 |
| Raven Run | Kentucky River | 0.0 | Headwaters | 2.8 | Fayette | Fayette | 2.8 |
| Rock Creek | White Oak Creek | 3.9 | Tennessee State Line | 21.9 | McCreary | McCreary | 18.0 |
| South Fork Station Camp Creek | Station Camp Creek | 0.0 | Viney Bottom | 12.3 | Jackson | Jackson | 12.3 |
| Sturgeon Creek | Ky 587 | 9.9 | Brushy Creek | 15.6 | Lee | Owsley | 5.7 |
| Tradewater River | Hoods Creek | 19.5 | W. Ky Parkway | 84.9 | Crittenden | Caldwell | 65.4 |

| River Name | Downstream Endpoint | River Mile | Upstream Endpoint | River Mile | Downstream County | Upstream County | Study Length |
|---|---|---|---|---|---|---|---|
| Tradewater River | Ky 109 | 92.6 | Sandlick Creek | 113.0 | Christian | Christian | 20.4 |
| Tygarts Creek | Clarks Branch (at Iron Hill, Ky) | 56.3 | I-64 | 71.9 | Carter | Carter | 15.6 |
| Whippoorwill Creek | Red River | 0.0 | Headwaters | 44.7 | Logan | Todd | 44.7 |

## CORRIDOR CHARACTER (Urban) -- CLASS 1 RIVERS

| River Name | Downstream Endpoint | River Mile | Upstream Endpoint | River Mile | Downstream County | Upstream County | Study Length |
|---|---|---|---|---|---|---|---|
| Green River | US 231 (Morgantown) | 141.3 | Renfrow Creek | 143.4 | Butler | Butler | 2.1 |
| Kentucky River | Penitentiary Branch (Frankfort) | 64.5 | Cedar Run | 68.7 | Franklin | Franklin | 4.2 |
| Ohio River | US 45 (Paducah) | 43.4 | Tennessee River | 48.8 | McCracken | McCracken | 5.4 |
| Ohio River | Canoe Creek (Henderson) | 174.6 | Midwest Raceway | 180.3 | Henderson | Henderson | 5.7 |
| Ohio River | Claypit Kilns (Owensboro) | 223.0 | Yellow Creek | 229.0 | Daviess | Daviess | 6.0 |
| Ohio River | Chickasaw Park (Louisville) | 369.8 | South Beargrass Creek | 379.3 | Jefferson | Jefferson | 9.5 |
| Ohio River | River Mile 553.9 (Augusta) | 553.9 | Bracken Creek | 555.0 | Bracken | Bracken | 1.1 |

## CORRIDOR CHARACTER (Urban) -- CLASS 2 RIVERS

| River Name | Downstream Endpoint | River Mile | Upstream Endpoint | River Mile | Downstream County | Upstream County | Study Length |
|---|---|---|---|---|---|---|---|
| Barren River | Jennings Creek (Bowling Green) | 28.5 | I-65 | 41.7 | Warren | Warren | 13.2 |
| Cumberland River | Wastewater Plant (Williamsburg) | 589.5 | US-25W | 591.7 | Whitley | Whitley | 2.2 |
| Kentucky River | Ohio River (Carrollton) | 0.0 | 2 miles upstream | 2.0 | Carroll | Carroll | 2.0 |
| Kentucky River | Ky 52 (Irvine) | 218.1 | Lock & Dam No. 12 | 220.9 | Estill | Estill | 2.8 |
| Licking River | Ohio River (Covington/Newport) | 0.0 | Banklick Creek | 4.6 | Campbell | Campbell | 4.6 |
| Little Sandy River | Stinson Creek Rd. (Grayson) | 36.6 | Dark Hollow Lake | 39.2 | Carter | Carter | 2.6 |
| Ohio River | Kentucky River (Carrollton) | 435.6 | US 227 | 436.9 | Carroll | Carroll | 1.3 |