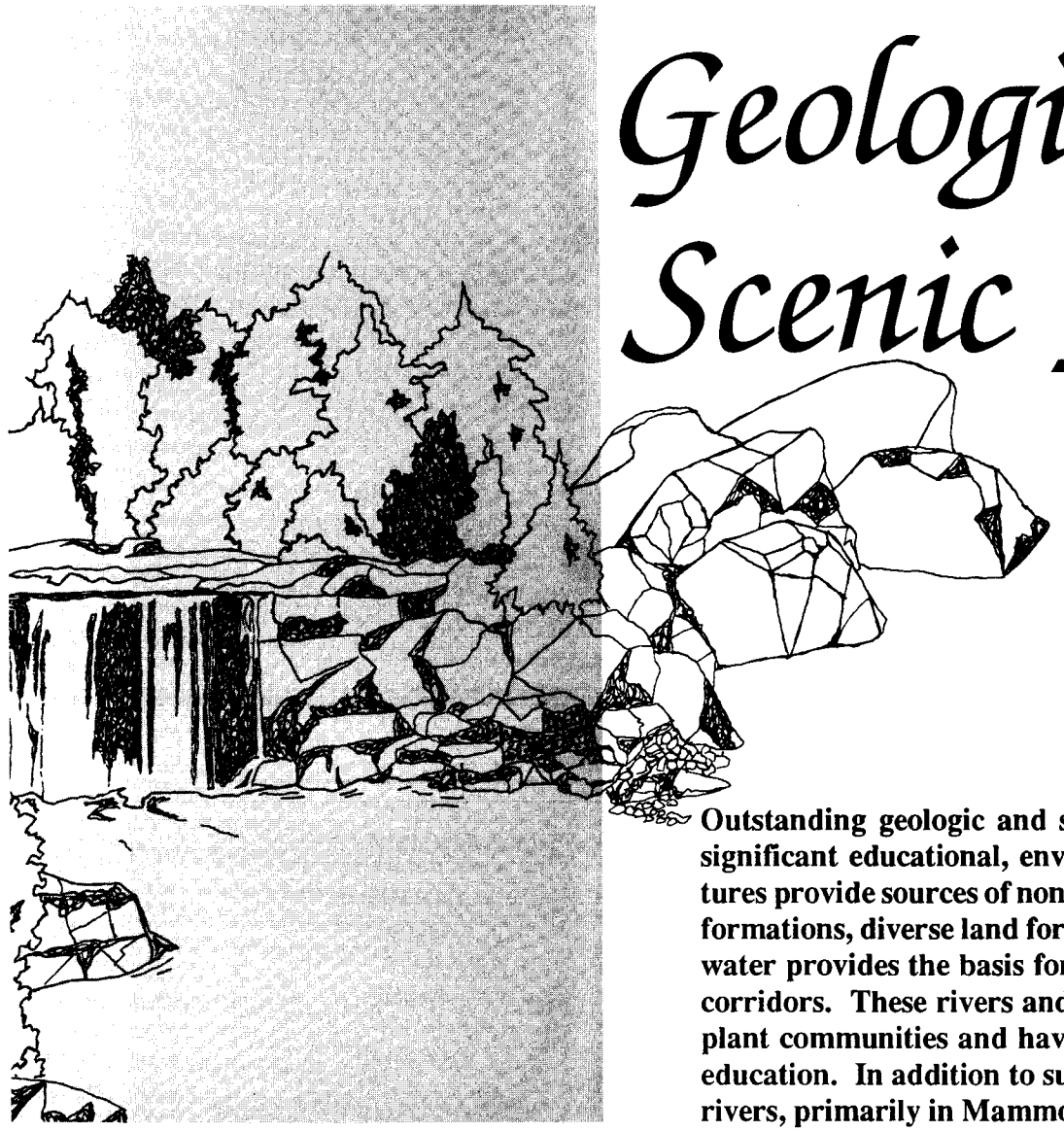
River Name	Downstream Endpoint	River Mile	Upstream Endpoint	River Mile	Downstream County	Upstream County	Study Length
House Fork Creek	Lake Cumberland	0.0	Headwaters	7.8	Pulaski	Pulaski	7.8
Hurricane Creek	Ohio River	0.0	Headwaters	17.7	Crittenden	Crittenden	17.7
Indian Camp Creek	East Prong Creek	3.0	Headwaters	17.8	Butler	Butler	14.8
Indian Creek	Red River	0.0	Headwaters	7.4	Menifee	Menifee	7.4
Indian Creek	Cumberland River	0.0	Headwaters	10.9	Knox	Knox	10.9
Jellico Creek	Cumberland River	0.0	Tennessee State Line	25.1	Whitley	McCreary	25.1
Jennings Creek	Barren River	0.0	Headwaters	6.6	Warren	Warren	6.6
Jenny Creek	Paint Creek	0.0	Headwaters	11.0	Johnson	Johnson	11.0
Johns Creek	Levisa Fork	0.0	Dewey Lake Dam	5.5	Floyd	Floyd	5.5
Johns Creek	Dewey Lake at Buffalo Creek	18.9	Headwaters	63.7	Floyd	Pike	44.8
Jones Creek	West Fork Skeggs Creek	0.0	Headwaters	2.5	Rockcastle	Rockcastle	2.5
Kentucky River	Ohio River	0.0	Beattyville	254.8	Carroll	Lee	254.8
Knox Creek	Tug Fork	0.0	Headwaters	7.6	Pike	Pike	7.6
Lacy Creek	Red River	0.0	Headwaters	6.8	Wolfe	Wolfe	6.8
Laurel Creek	Goose Creek	0.0	Headwaters	6.4	Clay	Clay	6.4
Laurel Fork	Greasy Creek	0.0	Headwaters	10.9	Leslie	Harlan	10.9
Laurel Fork	Quicksand Creek	0.0	Headwaters	15.5	Knott	Knott	15.5
Left Fork Beaver Creek	Beaver Creek	0.0	Headwaters	28.0	Floyd	Floyd	28.0
Levisa Fork	Big Sandy River	0.0	Fishtrap Lake Dam	126.1	Lawrence	Pike	126.1
Little Beaverdam Creek	Green River	0.0	Headwaters	13.0	Edmonson	Warren	13.0
Little Caney Creek	Big Caney Creek	0.0	Headwaters	9.0	Elliott	Elliott	9.0
Little Clifty Creek	Clifty Creek	0.0	Headwaters	5.3	Todd	Todd	5.3
Little Clifty Creek	Rough River Lake	8.0	Headwaters	12.7	Grayson	Grayson	4.7
Little Fork Little Sandy River	Little Sandy River	0.0	Headwaters	34.2	Carter	Elliott	34.2
Little Richland Creek	Richland Creek	0.0	Headwaters	10.4	Knox	Knox	10.4
Little Sexton Creek	Sexton Creek	0.0	Headwaters	7.7	Clay	Jackson	7.7
Little Whippoorwill Creek	Red River	0.0	Pleasant Run	4.2	Logan	Logan	4.2
Livingston Creek	Cumberland River	0.0	Headwaters	27.0	Crittenden	Crittenden	27.0
Looney Creek	Poor Fork Cumberland River	0.0	Headwaters	8.0	Harlan	Harlan	8.0
Lulbegrud Creek	Red River	0.0	Headwaters	22.0	Powell	Clark	22.0
Lynn Camp Creek	Laurel River Lake	0.0	Headwaters	14.7	Whitley	Whitley	14.7
Martins Fork	Clover Fork of Cumberland River	0.0	Martins Fork Dam	15.5	Harlan	Harlan	15.5
McFarland Creek	West Fork Pond River	0.0	Headwaters	10.4	Hopkins	Christian	10.4

River Name	Downstream Endpoint	River Mile	Upstream Endpoint	River Mile	Downstream County	Upstream County	Study Length
Meeting Creek	Rough River Lake	0.0	Headwaters	17.5	Grayson	Hardin	17.5
Middle Creek	Levisa Fork	0.0	Headwaters	18.0	Floyd	Magoffin	18.0
Middle Fork Little Sandy River	Grayson Lake	0.0	Headwaters	7.3	Elliott	Elliott	7.3
Middle Fork Rockcastle Creek	Rockcastle Creek	0.0	Headwaters	17.1	Martin	Martin	17.1
Middle Fork of Quicksand Creek	Quicksand Creek	0.0	Headwaters	9.9	Knott	Knott	9.9
Montgomery Creek	West Fork Red River	0.0	Headwaters	10.7	Christian	Christian	10.7
Muddy Creek	Green River	0.0	Headwaters	23.6	Butler	Logan	23.6
Newcombe Creek	Grayson Lake	1.0	Headwaters	6.9	Elliott	Elliott	5.9
Ohio River	Wabash River	133.5	Big Sandy River	664.0	Union	Boyd	530.5
Otter Creek	Ohio River	0.0	Headwaters	24.5	Meade	Hardin	24.5
Otter Creek	Lake Cumberland	13.0	Headwaters	27.5	Wayne	Wayne	14.5
Paint Creek	Levisa Fork	0.0	Paintsville Dam	8.0	Johnson	Johnson	8.0
Panther Creek	Green River	0.0	South Fork	22.6	Daviess	Daviess	22.6
Peter Creek	Dry Branch	9.4	Indian Camp Branch	17.0	Barren	Barren	7.6
Pitman Creek	Lake Cumberland	5.5	Headwaters	34.3	Pulaski	Pulaski	28.8
Pointer Creek	Fishing Creek	0.0	Headwaters	7.0	Pulaski	Pulaski	7.0
Pond Creek	Tug Fork	0.0	Headwaters	14.6	Pike	Pike	14.6
Pond River	Green River	0.0	Issacs Creek	22.2	Hopkins	Hopkins	22.2
Pond River	Buck Fork	79.7	Headwaters	101.1	Muhlenberg	Todd	21.4
Porter Creek	Lake Cumberland	1.4	Headwaters	5.0	Pulaski	Pulaski	3.6
Puckett Creek	Poor Fork Cumberland River	0.0	Headwaters	10.4	Harlan	Bell	10.4
Puncheon Creek	Fishing Creek	0.0	Headwaters	4.2	Pulaski	Pulaski	4.2
Quicksand Creek	North Fork Kentucky River	0.0	Headwaters	38.0	Breathitt	Breathitt	38.0
Raven Creek	Long Branch	0.0	Middle Fork Raven Creek	3.8	Harrison	Harrison	3.8
Renfroe Creek	Roundstone Creek	0.0	Headwaters	7.2	Rockcastle	Rockcastle	7.2
Richland Creek	Cumberland River	0.0	Headwaters	19.6	Knox	Knox	19.6
Right Fork Beaver Creek	Beaver Creek	0.0	Headwaters	39.0	Knott	Knott	39.0
Roaring Paunch Creek	Big South Fork	0.0	Tennessee State Line	15.7	McCreary	McCreary	15.7
Rock Creek	Nolin Lake	10.7	Headwaters	14.2	Grayson	Grayson	3.5
Rock Lick Creek	South Fork Station Camp Creek	0.0	Headwaters	9.2	Jackson	Jackson	9.2
Rock Lick Creek	Fishing Creek	0.0	Headwaters	9.0	Pulaski	Pulaski	9.0
Rockcastle Creek	Tug Fork	0.0	Headwaters	16.7	Lawrence	Martin	16.7
Rockhouse Creek	Licking River	0.0	Headwaters	8.5	Morgan	Magoffin	8.5

River Name	Downstream Endpoint	River Mile	Upstream Endpoint	River Mile	Downstream County	Upstream County	Study Length
Rockhouse Creek	North Fork Kentucky River	0.0	Headwaters	24.3	Letcher	Letcher	24.3
Rocky Creek	Mud River	0.0	Lake Malone Dam	15.2	Muhlenberg	Muhlenberg	15.2
Ross Creek	Kentucky River	0.0	Headwaters	7.2	Lee	Lee	7.2
Rough River	Mistaken Creek	72.4	Rough River Lake Dam	89.4	Grayson	Breckinridge	17.0
Rough River	Rough River Lake	133.8	2 miles above Pierce Mill Bridge	138.8	Hardin	Hardin	5.0
Round Stone Creek	Nolin River	5.5	Headwaters	14.4	Hart	Hart	8.9
Sandlick Creek	Tradewater River	0.0	Headwaters	9.0	Christian	Christian	9.0
Sellers Ditch	Canoe Creek	0.0	Canoe Creek	1.2	Henderson	Henderson	1.2
Shelby Creek	Levisa Fork	0.0	Headwaters	27.3	Pike	Letcher	27.3
Sinking Creek	Rockcastle River	0.0	Headwaters	20.4	Laurel	Laurel	20.4
Sinking Creek	Big South Fork	0.0	Headwaters	39.8	Wayne	Wayne	39.8
Sinking Creek	Boiling Springs	15.8	Ky 60	26.7	Breckinridge	Breckinridge	10.9
Skegg Creek	Rockcastle River	0.0	Headwaters	11.0	Rockcastle	Rockcastle	11.0
Skinframe Creek	Livingston Creek	0.0	Horseapple Creek	4.8	Lyon	Lyon	4.8
Spring Creek	Dale Hollow Lake	1.9	Headwaters	11.2	Clinton	Clinton	9.3
Stillwater Creek	Red River	0.0	Headwaters	10.3	Wolfe	Wolfe	10.3
Stinking Creek	Cumberland River	0.0	Headwaters	18.8	Knox	Knox	18.8
Sugar Creek	Tradewater River	0.0	Headwaters	2.7	Christian	Christian	2.7
Sulphur Spring Creek	River Mile 2.7	2.7	Neely Branch	6.9	Simpson	Simpson	4.2
Town Creek	Ohio River	0.0	Headwaters	5.8	Breckinridge	Breckinridge	5.8
Tradewater River	Ohio River	0.0	Headwaters	131.2	Crittenden	Christian	131.2
Troublesome Creek	North Fork Kentucky River	0.0	Headwaters	49.5	Breathitt	Knott	49.5
Tug Fork	Big Sandy River	0.0	Virginia State Line	94.0	Lawrence	Pike	94.0
Walkers Creek	North Fork Kentucky River	0.0	Headwaters	8.0	Lee	Wolfe	8.0
Wallins Creek	Poor Fork Cumberland River	0.0	Headwaters	6.2	Harlan	Harlan	6.2
Watts Creek	Cumberland River	0.0	Headwaters	12.4	Harlan	Harlan	12.4
Welch Creek	Green River	0.0	Headwaters	19.1	Butler	Butler	19.1
West Fork Pond River	Pond River	0.0	Headwaters	27.0	Christian	Christian	27.0
White Oak Creek	Licking River	0.0	Right & Left Forks	1.4	Morgan	Magoffin	1.4
White Oak Creek	Sinking Creek	0.0	Headwaters	4.0	Laurel	Laurel	4.0
White Oak Creek	Lake Cumberland	6.1	Headwaters	16.5	Pulaski	Pulaski	10.4
Williams Creek	Elk Fork	0.0	Headwaters	9.1	Morgan	Morgan	9.1

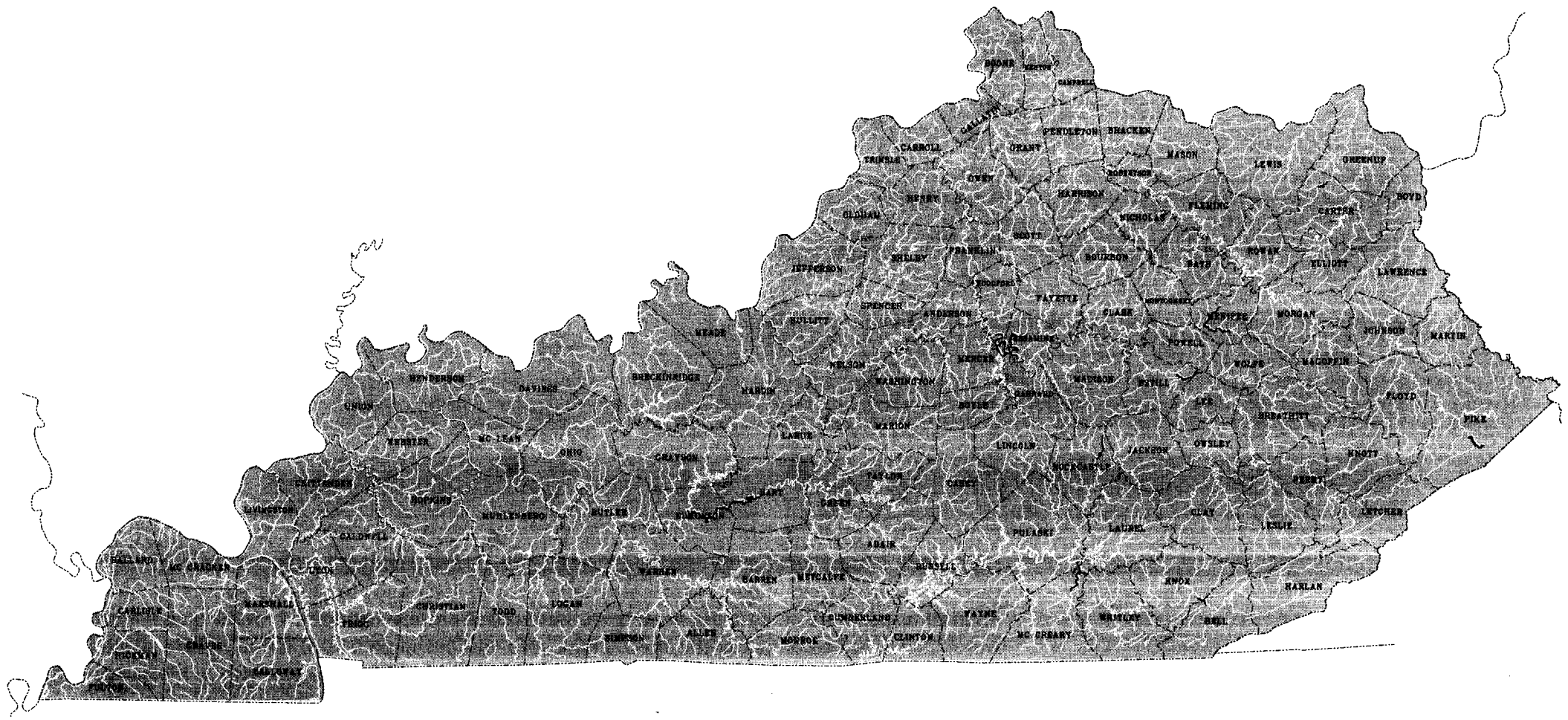
River Name	Downstream Endpoint	River Mile	Upstream Endpoint	River Mile	Downstream County	Upstream County	Study Length
Wolf Creek	Big South Fork	0.0	Headwaters	9.4	McCreary	McCreary	9.4
Wolf Creek	Tug Fork	0.0	Headwaters	20.5	Martin	Martin	20.5
Wolf Creek	Lake Cumberland	11.4	Headwaters	20.5	Pulaski	Pulaski	9.1
Wood Creek	Wood Creek Reservoir	12.3	Headwaters	17.5	Laurel	Laurel	5.2
Yellowbank Creek	Ohio River	0.0	Headwaters	11.3	Breckinridge	Breckinridge	11.3

Geologic and Scenic Features



Outstanding geologic and scenic riverine features located throughout Kentucky provide significant educational, environmental, recreational, and economic values. Geologic features provide sources of non-renewable resources and demonstrate geologic processes. Rock formations, diverse land forms, a variety of vegetative patterns and the dynamic presence of water provides the basis for the spectacular scenery that makes up these dramatic stream corridors. These rivers and adjacent corridors support a wide variety of fish, wildlife and plant communities and have unique settings for recreational activities and environmental education. In addition to surficial geologic features, Kentucky has numerous underground rivers, primarily in Mammoth Cave National Park, that are a valuable natural resource.

Geologic Feature Study Rivers



GEOLOGIC FEATURES

Geologic features are defined as those features that demonstrate geologic processes and provide for the interpretation of the earth's history. Such features as gorges, faults, waterfalls, fossils, caves and rock formations have been identified as significant because they provide the basis for the highly scenic and unique environments found along river corridors throughout Kentucky.

EVALUATION METHODOLOGY

The geologic values of a river are dependent upon the diversity and abundance of features. River segments with the greatest variety and number of these features provide the greatest values including scenic quality, environmental education potential, diversity of plant and animal species, and recreational opportunities.

To be included in the evaluation process, each river selected was required to meet the following **minimum standard:**

- occurrence of unique geologic features such as waterfalls, cascades, gorges, river terraces, and meander scars, or mineral springs

The geologic quality of each study river was determined by evaluating the diversity and abundance of gorges, faults, waterfalls, fossils, caves, and rock formations. The area subject to evaluation included the river and a corridor extending 2,000 feet outward from each river bank. The evaluation process consisted of a numerical point system for determining the overall value. Geologic features occurring along the study rivers were evaluated and assigned numeric scores for each feature. The scores for all features occurring within a study segment were totaled, and each river assigned a value class based on overall score. It should be noted that a short river segment may receive a low score yet have an extremely significant resource. Numeric scores used for each feature were 30 points (high), 20 points (medium), 10 points (low) or 0 points (lack of occurrence). The scores for each study river were assigned according to the following descriptions.

Gorges (height of gorge from river bed to cliff line)

400 feet and greater	30 points
200 to 399 feet	20 points
100 to 199 feet	10 points

Faults (measure of displacement)

20 feet and greater	30 points
5 to 19 feet	20 points
less than 5 feet	10 points

Waterfalls (height, width and flow characteristics)

substantial	30 points
moderate	20 points
small	10 points

Fossils (abundance)

abundant	30 points
moderate	20 points
minimal	10 points

Caves (abundance)

abundant	30 points
moderate	20 points
minimal	10 points

Rock Formations (arches, chimneys, and rock types)

abundant	30 points
moderate	20 points
minimal	10 points

Each river was assigned a value class based on the overall score of its features. The value class rankings are:

Class 1 .....60 points or greater

Class 2 .....30 - 59 points

Class 3 .....Less than 30 points

FINDINGS

A total of 23 segments (1.7% of the rivers studied in the assessment) covering 165.2 miles (0.4% of the total miles studied in the assessment) were evaluated in the Geologic Subcategory. Segments ranged in length from 1.0 mile (Yahoo Creek) to 43.2 miles (Green River), averaging 7.2 miles.

The majority of the geologic rivers identified in the assessment are located in eastern and west-central Kentucky. These areas of the state contain an abundance of waterfalls, gorges, caves, and rock features.

The highest ranking geologic rivers are the Kentucky, Echo, Hawkins, and Logsdon rivers. The Kentucky River segment includes the palisades, a deep 500- to 600-foot gorge with exceptional rock formations. The Echo, Logsdon, and Hawkins rivers are an integral part of the Mammoth Cave system, the world's longest cave system. These subterranean rivers contain karst features such as vertical shafts, pits and domes, chimneys, and natural wells. They also have riffles, pools, cascades, and waterfalls.

Six rivers covering 49 miles were identified as Class 1 geologic rivers. They ranged in length from 2.2 miles to 22.1 miles, averaging 8.2 miles. Three of the six rivers--Echo, Hawkins, and Logsdon--are underground rivers located in or adjacent to Mammoth Cave National Park. Table 14 lists significant features attributed to each of the Class 1 rivers.

Table 14. Features of Class 1 Geologic Rivers

River Segment	Geologic Feature
Clifty Creek	Waterfalls, Fossils, Gorge
Echo River	Waterfalls, Caves, Rock Features
Hawkins River	Waterfalls, Caves, Rock Features
Kentucky River	Faults, Gorge, Rock Features
Logsdon River	Waterfalls, Caves, Rock Features
Russell Fork	Faults, Gorge

Ten rivers covering 91.2 miles were identified as Class 2 rivers. Class 2 rivers ranged in length from 1.5 to 43.2 miles, averaging 9.1 miles. Most of these rivers are located in eastern Kentucky. Table 15 lists significant features attributed to each of the Class 2 geologic rivers.

Table 15. Features of Class 2 Geologic Rivers

River Segment	Geologic Feature
Big Bone Creek	Fossils
Cave Branch	Caves, Rock Features
Crooked Creek	Caves
Cumberland River (McCreary)	Waterfalls
Cumberland River (Bell)	Fault
Green River	Caves
Ison Creek	Rock Features
Ohio River	Fossils
Red River	Rock Features
Tygarts Creek	Gorge, Caves, Rock Features

Seven rivers covering 25 miles were identified as Class 3 rivers. Class 3 rivers ranged in length from 1.0 to 8 miles, averaging 3.6 miles. The majority of these are located in eastern Ken-

tucky. Table 16 lists significant features attributed to each of the Class 3 geologic rivers.

Table 16. Features of Class 3 Geologic Rivers

River Segment	Geologic Feature
Big Sinking Creek	Caves
Cave Hollow Creek	Caves
Dix River	Gorge
East Fork Indian Creek	Caves
Jessamine Creek	Gorge
Mississippi River	Rock Features
Yahoo Creek	Waterfalls

Table 17. Summary of Geologic Resource Evaluations

	Class 1	Class 2	Class 3	Total
Number of Segments	6	10	7	23
Miles	49	91.2	25	165.2

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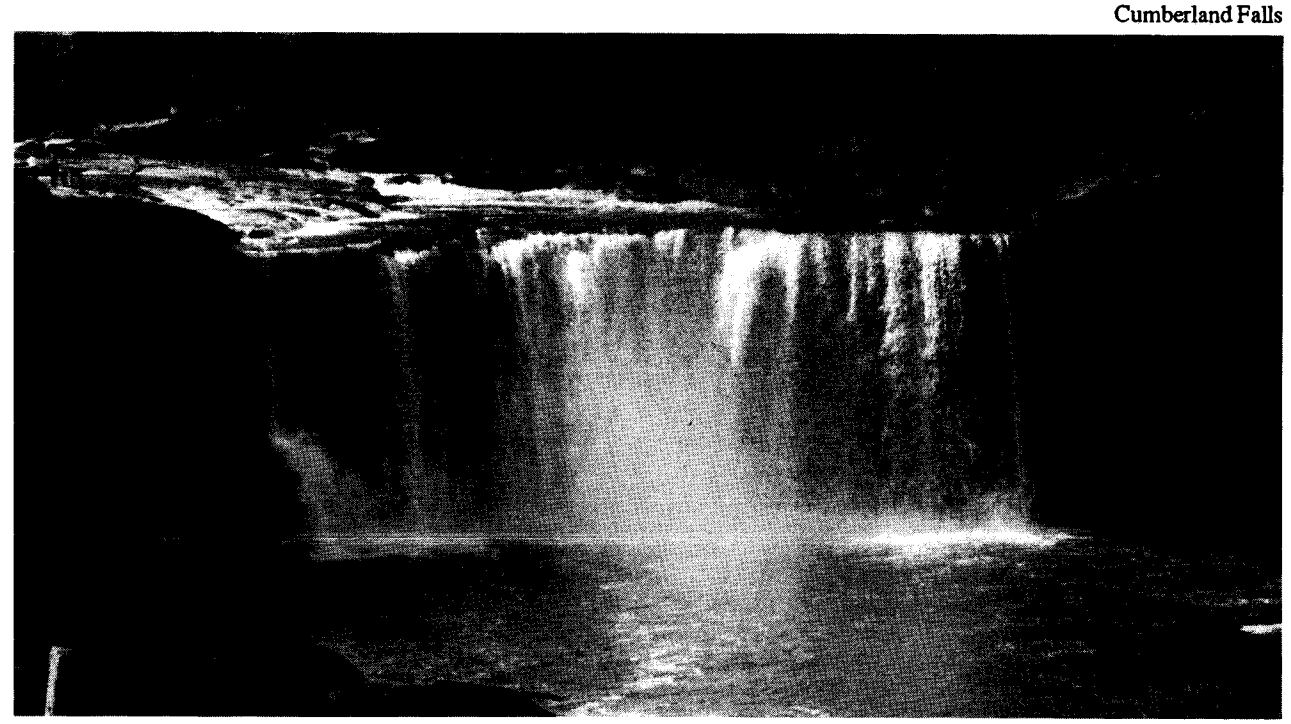
Cumberland Falls



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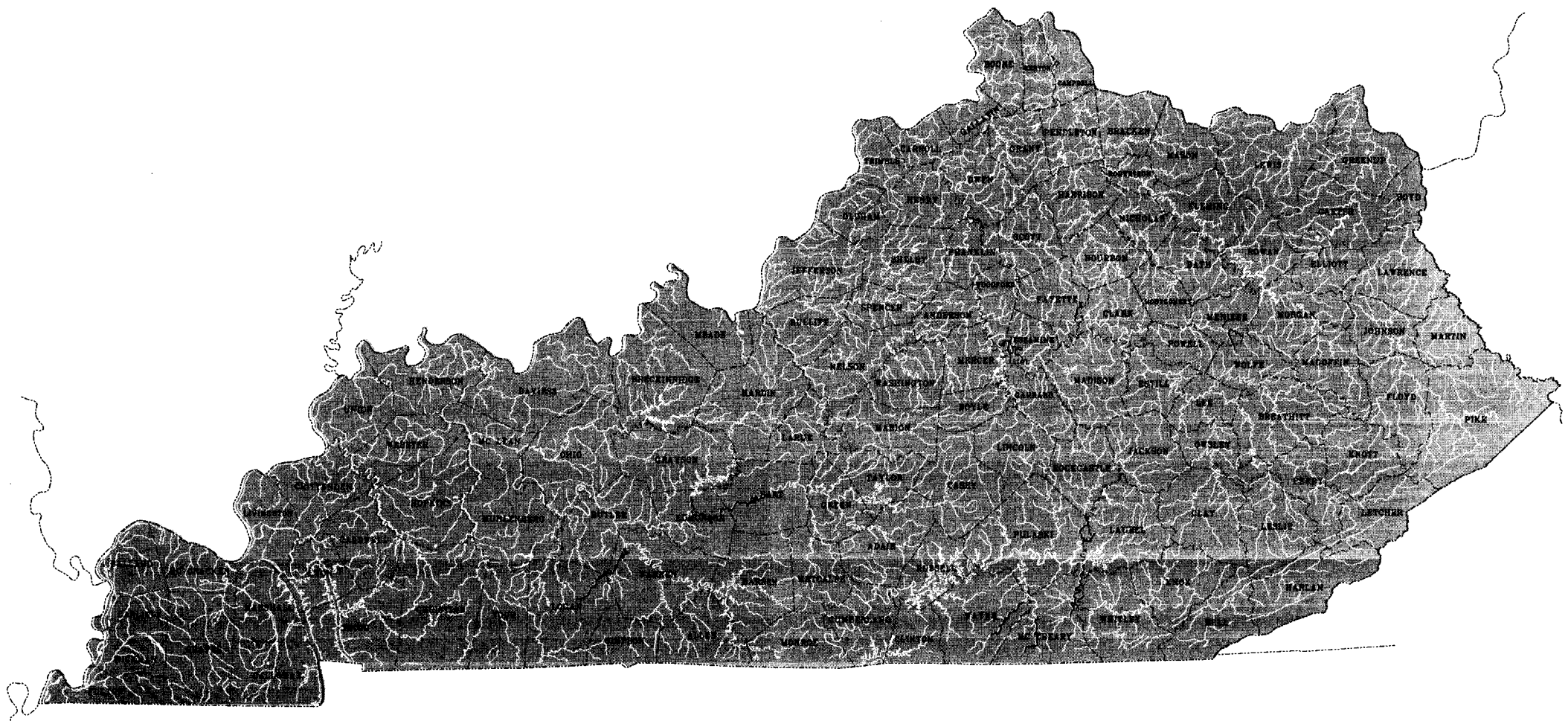
Scenic Feature Study Rivers



SCENIC FEATURES

The scenic quality of a river and its corridor are a function of the diversity, frequency, and unique characteristics of various natural and cultural components. Scenic landscape values can be defined based on the relationship among these various components. In general, variety and contrast are positive values of landscape composition within a river corridor - the greater the variety and contrast of landscape components, the higher the scenic value. Those landscapes with the most variety and contrast in terms of land forms, rock formations, vegetative patterns, and water form; the most dramatic corridor enclosure; and a high degree of water clarity have the greatest potential for high scenic value.

EVALUATION METHODOLOGY

Rivers and river segments that met specific minimum standards were evaluated for scenic quality values. Each study segment met all of the following **minimum standards:**

- minimum length of approximately five miles or headwater stream of any length
- free of significant impoundments, hydrologic modifications or diversions
- predominantly unaltered river corridor with a high degree of diversity

The scenic quality of each study river was determined by evaluating landscape diversity, corridor width, and water clarity. The relative degree of scenic quality was based on the diversity of landscape shapes and patterns, degree of enclosure, and clarity of water. The area evaluated included the river and a corridor extending 2,000 feet outward from each river bank. Even though the defined corridor does not always include the entire viewed area, it does encompass the foreground where landscape details are most discernable and prominent. The evaluation criteria are defined as follows:

- **Landscape diversity**--The amount of diversity (variety) is a measure of scenic value in a particular landscape. The scenic value of a river corridor will be enhanced when there is a diversity of land forms, rock formations, vegetative patterns and water form.
- **Corridor width**--The width of a river corridor relative to its relief or the amount of enclosure has a substantial effect on scenic quality. Narrow corridors enclosed by high, steeply sloping land forms have significant scenic values.
- **Water clarity**--The presence and visual clarity of water is a significant factor in determining scenic quality. An abundant supply of clear water significantly enhances scenic values.

The evaluation of scenic quality was conducted at a regional landscape level reflecting the three physiographic provinces of Kentucky - coastal plain, interior low plateau, and appalachian plateau. Study rivers were assigned to that province where the majority of the river reach was located and, subsequently, evaluated relative to all study rivers within that province. Rivers occurring in different provinces were not compared to one another due to significant variations in landscape character.

The landscape characteristics of these physiographic provinces are defined by Nevin M. Fenneman in *Physiography of Eastern United States*, 1938, and are described as follows:

Coastal Plain--area located in extreme western Kentucky ranging from alluvian lowlands of the Mississippi River to gently rolling hills and broad natural grasslands; elevations up to 600 feet.

Interior Low Plateau--area in central and western Kentucky ranging from the hills of the western coal fields south of Owensboro to the karst topography of cave country around Bowling Green to the gently rolling bluegrass area of Lexington; elevations from 500 to 1,400 feet.